```
=> fil wpix
FILE 'WPIX' ENTERED AT 14:04:56 ON 31 OCT 2007
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FILE LAST UPDATED:                          26 OCT 2007   <20071026/UP>
MOST RECENT THOMSON SCIENTIFIC UPDATE:     200769      <200769/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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>>> IPC Reform backfile reclassification has been loaded to September 6th
    2007. No update date (UP) has been created for the reclassified
    documents, but they can be identified by 20060101/UPIC and
    20061231/UPIC, 20070601/UPIC and 20071001/UPIC. <<<


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http://www.stn-international.de/training_center/patents/stn_guide.pdf

FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE
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EXPLORE DERWENT WORLD PATENTS INDEX IN STN ANAVIST, VERSION 2.0:
http://www.stn-international.com/archive/presentations/DWPIAnaVist2_0710.p
df

=> d his nofile

     (FILE 'HOME' ENTERED AT 11:21:17 ON 31 OCT 2007)

     FILE 'WPIX' ENTERED AT 11:21:24 ON 31 OCT 2007
                E PROCHAZKA ?/AU
L1           45 SEA ABB=ON  PLU=ON  "PROCHAZKA J"/AU
                E MALCOME ?/AU
                E SPITLER ?/AU
L2           16 SEA ABB=ON  PLU=ON  "SPITLER T M"/AU

     FILE 'WPIX' ENTERED AT 11:31:49 ON 31 OCT 2007
L3          598 SEA ABB=ON  PLU=ON  (TI OR TITANIUM)(A)(PHOSPHATE OR
                OXIDE(A)HYDRATE)
L4              QUE ABB=ON  PLU=ON  PIGMENT?
L5              QUE ABB=ON  PLU=ON  COLOR? OR COLOUR? OR DYE?
L6            7 SEA ABB=ON  PLU=ON  (L1 OR L2) AND (L3 OR L4 OR L5)
                D IFULL 1
L7            0 SEA ABB=ON  PLU=ON  L6 NOT P/DT

     FILE 'HCAPLUS' ENTERED AT 11:36:32 ON 31 OCT 2007
                E PROCHAZKA ?/AU
L8           49 SEA ABB=ON  PLU=ON  "PROCHAZKA JAN"/AU
                E SPITLER ?/AU
                E SPITLER T?/AU
L9           20 SEA ABB=ON  PLU=ON  ("SPITLER TIMOTHY M"/AU OR "SPITLER
                TIMOTHY MALCOME"/AU)
L10           9 SEA ABB=ON  PLU=ON  (L8 OR L9) AND (L3 OR L4 OR L5)
L11           3 SEA ABB=ON  PLU=ON  L10 NOT P/DT
                D IALL 1

     FILE 'HCAPLUS' ENTERED AT 11:59:52 ON 31 OCT 2007
L12           1 SEA ABB=ON  PLU=ON  US2005214466/PN
```

STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* [ ] *Example: 1713*
- *Relevant prior art* ***found****, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art* ***not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

Search Report
EIC 1700

STIC Database Tracking Number: 241430

To:	From:
To: BRIGET NGAMPA **Location: REM-8B65** **Art Unit: 1792** **Wednesday, October 31, 2007** **Case Serial Number: 10/806698**	**From: MEI HUANG** **Location: EIC1700** **REM-4B28 / REM-4B31** **Phone: (571)272-3952** **mei.huang@uspto.gov**

Search Notes

Examiner NGAMPA:

Please feel free to contact me if you have any questions or if you would like to refine the search query. Thank you for using STIC services!

Regards,
Mei

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                SEL RN

     FILE 'REGISTRY' ENTERED AT 12:00:43 ON 31 OCT 2007
L13           19 SEA ABB=ON  PLU=ON  (12030-97-6/BI OR 12031-95-7/BI OR
                 12047-27-7/BI OR 1310-58-3/BI OR 1310-65-2/BI OR
                 1314-23-4/BI OR 1344-13-4/BI OR 1344-28-1/BI OR 13463-67-
                 7/BI OR 13470-09-2/BI OR 13765-94-1/BI OR 17194-00-2/BI
                 OR 18282-10-5/BI OR 50-81-7/BI OR 57917-51-8/BI OR
                 7440-06-4/BI OR 7550-45-0/BI OR 7647-01-0/BI OR 7664-38-2
                 /BI)
                 D SCA
L14            1 SEA ABB=ON  PLU=ON  13470-09-2/RN
L15            1 SEA ABB=ON  PLU=ON  13765-94-1/RN

     FILE 'HCAPLUS' ENTERED AT 12:11:38 ON 31 OCT 2007
L16          225 SEA ABB=ON  PLU=ON  L14
L17          585 SEA ABB=ON  PLU=ON  L15
L18         4212 SEA ABB=ON  PLU=ON  (TI OR TITANIUM?)(2A)(PHOSPHATE OR
                 DIPHOSPHATE OR OXIDE(A)PHOSPHATE OR DIPHOSPHORIC OR
                 PYROPHOSPHATE)
L19              QUE ABB=ON  PLU=ON  COAT? OR LAYER? OR TOPLAYER? OR
                 THINLAYER?
L20         1268 SEA ABB=ON  PLU=ON  (L16 OR L17 OR L18) AND L19
L21           25 SEA ABB=ON  PLU=ON  L14(L)L19
L22          102 SEA ABB=ON  PLU=ON  L15(L)L19
L23          494 SEA ABB=ON  PLU=ON  L18(3A)L19
L24          569 SEA ABB=ON  PLU=ON  L20 AND (L21 OR L22 OR L23)

     FILE 'REGISTRY' ENTERED AT 13:29:03 ON 31 OCT 2007
L25            1 SEA ABB=ON  PLU=ON  "SODIUM HYDROXIDE"/CN
L26            1 SEA ABB=ON  PLU=ON  "POTASSIUM HYDROXIDE"/CN
L27            1 SEA ABB=ON  PLU=ON  "LITHIUM HYDROXIDE"/CN
L28            1 SEA ABB=ON  PLU=ON  "HYDROGEN CHLORIDE"/CN
L29            1 SEA ABB=ON  PLU=ON  "SULFURIC ACID"/CN

     FILE 'HCAPLUS' ENTERED AT 13:32:29 ON 31 OCT 2007
L30       411447 SEA ABB=ON  PLU=ON  L25 OR (NA OR SODIUM)(A)HYDROXIDE OR
                 NAOH
L31       172468 SEA ABB=ON  PLU=ON  L26 OR (K OR POTASSIUM)(A)HYDROXIDE
                 OR KOH
L32        16119 SEA ABB=ON  PLU=ON  L27 OR (LI OR LITHIUM)(A)HYDROXIDE
                 OR LIOH
L33       628838 SEA ABB=ON  PLU=ON  L28 OR HYDROGEN(A)CHLORIDE OR HCL
L34       442316 SEA ABB=ON  PLU=ON  L29 OR SULFURIC(A)ACID OR H2SO4
L35              QUE ABB=ON  PLU=ON  STRONG(2A)BASE
L36              QUE ABB=ON  PLU=ON  STRONG(2A)ACID
L37           22 SEA ABB=ON  PLU=ON  L24 AND (L35 OR (L30 OR L31 OR L32))
L38            6 SEA ABB=ON  PLU=ON  L37 AND (L36 OR (L33 OR L34))
L39              QUE ABB=ON  PLU=ON  SURFAC?
L40          282 SEA ABB=ON  PLU=ON  L24 AND L39
L41              QUE ABB=ON  PLU=ON  SURFAC?(3A)(MODIFICAT? OR IMPROV? OR
                 TREAT? OR PROCESS? OR CONDITION?)
L42           66 SEA ABB=ON  PLU=ON  L40 AND L41
L43            4 SEA ABB=ON  PLU=ON  L38 AND L42
L44              QUE ABB=ON  PLU=ON  PROCESS? OR METHOD? OR PROCEDURE?
L45           48 SEA ABB=ON  PLU=ON  L42 AND L44
L46           32 SEA ABB=ON  PLU=ON  L45 AND (PY<=2004 OR PRY<=2004 OR
                 AY<=2004)
L47            6 SEA ABB=ON  PLU=ON  L38 OR L43
L48           29 SEA ABB=ON  PLU=ON  L46 NOT L47
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     FILE 'WPIX' ENTERED AT 13:44:56 ON 31 OCT 2007
L49           66 SEA ABB=ON  PLU=ON  L18(3A)L19
L50            1 SEA ABB=ON  PLU=ON  US20050214466/PN
                 D IFULL
L51            5 SEA ABB=ON  PLU=ON  L49 AND (L35 OR (L30 OR L31 OR L32))
L52            2 SEA ABB=ON  PLU=ON  L51 AND (L36 OR (L33 OR L34))
L53            9 SEA ABB=ON  PLU=ON  L49 AND L41
L54            2 SEA ABB=ON  PLU=ON  L52 AND L53
L55            9 SEA ABB=ON  PLU=ON  L53 OR L54

     FILE 'COMPENDEX' ENTERED AT 13:54:27 ON 31 OCT 2007
L56           94 SEA ABB=ON  PLU=ON  L18(3A)L19
L57            5 SEA ABB=ON  PLU=ON  L56 AND (L35 OR (L30 OR L31 OR L32))
L58            1 SEA ABB=ON  PLU=ON  L57 AND (L36 OR (L33 OR L34))

     FILE 'JAPIO' ENTERED AT 13:55:20 ON 31 OCT 2007
L59           15 SEA ABB=ON  PLU=ON  L18(3A)L19
L60            0 SEA ABB=ON  PLU=ON  L59 AND (L35 OR (L30 OR L31 OR L32))

     FILE 'PASCAL' ENTERED AT 13:56:22 ON 31 OCT 2007
L61           52 SEA ABB=ON  PLU=ON  L18(3A)L19
L62            2 SEA ABB=ON  PLU=ON  L61 AND (L35 OR (L30 OR L31 OR L32))
                 D SCA
L63            0 SEA ABB=ON  PLU=ON  L62 AND (L36 OR (L33 OR L34))


=> d l55 ifull 1-9

L55  ANSWER 1 OF 9  WPIX COPYRIGHT 2007       THE THOMSON CORP on STN
ACCESSION NUMBER:     2005-648740 [66]    WPIX
DOC. NO. NON-CPI:     N2005-531530 [66]
TITLE:                Production process for surface
                      -modified ceramic material involves washing base
                      layer covered by thin layer of
                      titanium phosphate, after being
                      treated with strong base
DERWENT CLASS:        P42
INVENTOR:             PROCHAZKA J; SPITLER T M; SPITLER T
PATENT ASSIGNEE:      (ALTA-N) ALTAIR NANOMATERIALS INC; (ALTA-N)
                      ALTAIRNANO INC
COUNTRY COUNT:        108

PATENT INFORMATION:

      PATENT NO       KIND DATE     WEEK     LA  PG          MAIN IPC
      ------------------------------------------------------------------
      US 20050214466  A1 20050929 (200566)* EN  22[11]
      WO 2005095526   A1 20051013 (200567)  EN
      EP 1730241      A1 20061213 (200701)  EN
      AU 2005228861   A1 20051013 (200720)  EN
      KR 2006127265   A  20061211 (200740)  KO

APPLICATION DETAILS:

      PATENT NO       KIND                  APPLICATION    DATE
      ------------------------------------------------------------------
      US 20050214466 A1                     US 2004-806698 20040323
      AU 2005228861 A1                      AU 2005-228861 20050323
```

EP 1730241 A1	EP 2005-730290 20050323
WO 2005095526 A1	WO 2005-US9589 20050323
EP 1730241 A1	WO 2005-US9589 20050323
KR 2006127265 A	WO 2005-US9589 20050323
KR 2006127265 A	KR 2006-721851 20061020

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
EP 1730241	A1	Based on	WO 2005095526	A
AU 2005228861	A1	Based on	WO 2005095526	A
KR 2006127265	A	Based on	WO 2005095526	A

PRIORITY APPLN. INFO: US 2004-806698 20040323
INT. PATENT CLASSIF.:
IPC ORIGINAL: C09C0001-36 [I,A]; C09C0001-36 [I,C]; C09C0001-40 [I,A]; C09C0001-40 [I,C]; C09C0003-06 [I,A]; C09C0003-06 [I,C]; C09C0001-36 [I,C]; C09C0001-40 [I,A]; C09C0001-40 [I,C]; C09C0003-06 [I,A]; C09C0003-06 [I,C]
IPC RECLASSIF.: C09C0001-36 [I,A]; C09C0001-36 [I,C]; C09C0001-40 [I,A]; C09C0001-40 [I,C]; C09C0003-06 [I,A]; C09C0003-06 [I,C]

BASIC ABSTRACT:
US 20050214466 A1 UPAB: 20051223
NOVELTY - A base layer, covered by a thin **layer** of **titanium phosphate**, is washed after being treated with a **strong base**. The finished product is calcined and contacted with **strong acid** after being dried.
USE - For producing surface-modified ceramic material.
ADVANTAGE - Uses aluminum oxide, zirconium oxide or similar ceramic compound as base material. Enhances surface effect.
DESCRIPTION OF DRAWINGS - The figure shows the schematic drawing of a **surface modification** step.

FILE SEGMENT: GMPI

L55 ANSWER 2 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2002-671662 [72] WPIX
DOC. NO. CPI: C2002-189131 [72]
TITLE: A chromium free **surface treated** steel sheet has a titanium system surface layer on a phosphate system primary layer
DERWENT CLASS: M14
INVENTOR: AKUI; HARUTA Y; ISOZAKI O; YAMAMOTO M
PATENT ASSIGNEE: (KAPA-C) KANSAI PAINT CO LTD
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 2002275653	A	20020925	(200272)*	JA	12[0]	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 2002275653	A	JP 2001-74961	20010315

PRIORITY APPLN. INFO: JP 2001-74961 20010315
INT. PATENT CLASSIF.:
IPC RECLASSIF.: C23C0018-00 [I,C]; C23C0018-12 [I,A]; C23C0022-05 [I,C]; C23C0022-07 [I,A]; C23C0022-12 [I,A]; C23C0022-82 [I,C]; C23C0022-83 [I,A]; C23C0028-00 [I,A]; C23C0028-00 [I,C]

BASIC ABSTRACT:

JP 2002275653 A UPAB: 20050527

NOVELTY - A steel sheet, whose surface coated with two layers made by treating it with two different treating agents in series i.e., the primary treated layer and secondary treated layer. The former is made by treating it with phosphate and the latter is made by treating it with titanium system treating agent, which comprises an aqueous solution (A) of titanium, at least one of inorganic salt (B), and a aqueous organic polymer (C) which is stable in low pH atmosphere not higher than 7.

DETAILED DESCRIPTION - (A) is the product of the reaction between at least one of a hydrolyzable titanium compound, a low condensate of hydrolyzable titanium compounds, titanium hydroxide, and a low condensate of titanium hydroxide and hydrogen peroxide. (B) is at least one compound of phosphate system compounds, titanium acid fluoride, and titanium hydrogen fluoride.

INDEPENDENT CLAIMs are included for the reaction that produces (A), the hydrolyzable compound including its structural formula, degree of condensation of the low condensate of titanium hydroxide, the mixing ratio of titanium compound and hydrogen peroxide, tangible names that belong to (B) including their dosage, tangible names that belong to (C) including their dosage, the range of pH value of primary treating agent, and for the method of manufacturing multiple **surface treated** steel sheets.

USE - Used for manufacturing multiple **surface treated** steel sheets.

ADVANTAGE - An oxygen and moisture tight secondary treated layer can be fixed tightly on phosphate treated primary layer to form Cr free anticorrosive and rustproof composite layer.

EXTENSION ABSTRACT:

EXAMPLE - A phosphate treated steel sheet was coated with the secondary treating agent made (as weigh parts) 50 of 2 % titanium system aqueous solution, 5 of 20 % zirconium acid fluoride, 10 of 30 % aqueous acrylic resin dispersion, and 35 of water with the dosage of 0.2 g/(square m) then baked at 100 degreesC for 5 seconds.

FILE SEGMENT: CPI
MANUAL CODE: CPI: M14-D02

L55 ANSWER 3 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2002-387856 [42] WPIX
DOC. NO. CPI: C2002-109602 [42]
TITLE: Galvanized sheet iron used as corrosion-resistant steel materials, contains skin **layer** comprising tetravalent **titanium** compound, **phosphate** and tannate formed by chemical conversion **treatment** on galvanized layer **surface**
DERWENT CLASS: E19; M13; M14
INVENTOR: ARIYOSHI Y; MATSUNO M; MORIKAWA S; NAKANO T; TAKETSU H; UEDA K
PATENT ASSIGNEE: (NISI-C) NISSHIN STEEL CO LTD

COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 2002060959	A	20020228	(200242)*	JA	4	[0]

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 2002060959	A	JP 2000-248163	20000818

PRIORITY APPLN. INFO: JP 2000-248163 20000818
INT. PATENT CLASSIF.:
MAIN: C23C022-08
SECONDARY: C23C022-36
BASIC ABSTRACT:
JP 2002060959 A UPAB: 20050526
NOVELTY - A galvanized sheet iron contains skin **layer** comprising a tetravalent **titanium** compound, a **phosphate** and tannic acid or tannate, formed by chemical conversion **treatment** on galvanized layer **surface.**
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:
(i) Chemical conversion treatment liquid for galvanized sheet irons, which contains water-soluble titanium compound, phosphoric acid or phosphate and tannic acid or tannate, and has a pH value of 0.5-4; and
(ii) Chemical conversion treatment method of galvanized sheet iron, which involves applying chemical conversion treatment liquid on galvanized sheet iron, followed by heat drying at 50-200degreesC and without washing in water.
USE - As corrosion-resistant steel material.
ADVANTAGE - The galvanized sheet iron has excellent corrosion resistance, coating film adhesion and improved barrier function property. The treated skin layer in galvanized sheet iron does not contain chromium, which causes environmental pollution, hence it is used as a replacement for chromated treatment steel plates.
FILE SEGMENT: CPI
MANUAL CODE: CPI: E05-G09D; E05-L01; E31-K05A; E35-K04; M13-A02; M14-K

L55 ANSWER 4 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2001-292749 [31] WPIX
DOC. NO. CPI: C2001-089849 [31]
DOC. NO. NON-CPI: N2001-209295 [31]
TITLE: Support for photographic or thermographic recording sheet is coated with water-resistant resin layer containing titanium dioxide pretreated with silane and aluminum phosphate
DERWENT CLASS: A89; E11; G05; G06; P73; P75; P83; P84; S06; T04
INVENTOR: KATO S
PATENT ASSIGNEE: (FUJF-C) FUJI PHOTO FILM CO LTD
COUNTRY COUNT: 27

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 1085374	A1	20010321	(200131)*	EN	12[0]	
JP 2001083662	A	20010330	(200134)	JA	7	
US 6254992	B1	20010703	(200140)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1085374	A1	EP 2000-119378	20000911
JP 2001083662	A	JP 1999-259960	19990914
US 6254992	B1	US 2000-659608	20000911

PRIORITY APPLN. INFO: JP 1999-259960 19990914
INT. PATENT CLASSIF.:
IPC RECLASSIF.: B41M0005-00 [I,A]; B41M0005-00 [I,C]; B41M0005-26 [I,C]; B41M0005-28 [I,A]; B41M0005-28 [I,C]; B41M0005-30 [I,A]; B41M0005-30 [I,C]; B41M0005-382 [I,A]; B41M0005-40 [I,C]; B41M0005-42 [I,A]; B41M0005-50 [I,A]; B41M0005-50 [I,C]; B41M0005-52 [I,A]; G03C0001-775 [I,C]; G03C0001-79 [I,A]; G03G0007-00 [I,A]; G03G0007-00 [I,C]

BASIC ABSTRACT:

EP 1085374 A1 UPAB: 20050705

NOVELTY - A support for a recording sheet comprises:

(a) a substrate having an image printing side and

(b) a water-resistant resin coating layer on each side of the substrate.

At least the layer on the image printing side contains a titanium dioxide pigment comprising particles **surface treated**, in an aqueous slurry, with a silane coupling agent and aluminum phosphate. The amount of aluminum phosphate is 0.05-1.2 weight%, based on titanium dioxide.

USE - The support is used in photographic and thermographic applications e.g. in photographic printing paper, photocomposing printing paper, reversal photographic material, image-receiving layer of a silver salt diffusion transfer process, heat-sensitive material or transfer sheet, ink jet sheet, color xerox etc.

ADVANTAGE - The recording sheet exhibits no film cracking and it gives excellent image sharpness and light fading resistance. Occurrence of die-lip stripes is inhibited.

TECHNOLOGY FOCUS:

ORGANIC CHEMISTRY - Preferred Silane: The silane is of formula (I).

(R1)n-Si-(OR2)4-n (I)

R1 = up to 10C hydrocarbyl containing alkyl, vinyl or methacryl group(s);

R2 = methyl or ethyl; and

n = 1-3.

The silane is used in amount 0.05-3.0 (preferably 0.5-2.0) weight%, based on titanium dioxide.

INORGANIC CHEMISTRY - Preferred Titanium Dioxide: The titanium dioxide has a mean particle diameter of 0.1-0.4 microns. It is treated with 0.1-0.8 weight% of aluminum phosphate.

EXTENSION ABSTRACT:

EXAMPLE - Anatase type titanium dioxide (0.16 micron diameter) was slurried in water (300 g/l) and treated with aluminum phosphate (0.5 weight%) at 40 deg.C. The slurry was adjusted to pH 3,

treated with CH3Si(OCH3)3 (0.8 weight%), stirred and hydrolyzed. The slurry was heated at 80 deg.C before the solid was filtered, washed and dried at 120 deg.C for 12 hours. The product was ground in a jet mill to obtain a pigment. - A paper substrate was subjected to corona discharge and coated on its reverse side with a 27 micron thick layer of HDPE/LDPE (high and low density polyethylene blend). The image side was laminated at 326 deg.C with a composition comprising LDPE (67.7 weight%), the modified pigment (30 weight%), zinc stearate (2 weight%) and ultramarine blue (0.3 weight%). Layer thickness was 28 microns. - The support was examined with respect to film cracking traces, die-lip stripes during lamination, sharpness of image and light fading resistance when exposed to sunlight. All were rated as excellent.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A06-A00E1; A12-B07A; A12-L01; A12-L05A; A12-W07F; E05-E02; E31-K07; E35-K02; G05-F01; G05-F03; G06-A02; G06-B01; G06-H11
EPI: S06-B04E; T04-G02E

L55 ANSWER 5 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1999-265518 [23] WPIX
DOC. NO. CPI: C1999-078398 [23]
DOC. NO. NON-CPI: N1999-197944 [23]
TITLE: **Surface treatment** of aluminum containing metal
DERWENT CLASS: M14; P42; Q78
INVENTOR: IINO Y; KOBAYASHI K; KOJIMA H; MIZUNO H; OHSAKO T; OSAKO T; SUGAWARA H
PATENT ASSIGNEE: (NPDE-C) DENSO CORP; (HOOL-C) NIHON PARKERISING CO LTD; (HOOL-C) NIHON PARKERIZING CO LTD; (HOOL-C) NIPPON PARKERIZING CO LTD; (NPDE-C) NIPPONDENSO CO LTD
COUNTRY COUNT: 27

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 911427	A1	19990428	(199923)*	EN	0[0]	
AU 9889457	A	19990513	(199930)	EN		
JP 11131254	A	19990518	(199930)	JA	10	
US 6306226	B1	20011023	(200165)	EN		
AU 746200	B	20020418	(200238)	EN		
EP 911427	B1	20030305	(200318)	EN		
DE 69811818	E	20030410	(200332)	DE		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 911427 A1		EP 1998-119763	19981022
JP 11131254 A		JP 1997-292931	19971024
AU 9889457 A		AU 1998-89457	19981022
AU 746200 B		AU 1998-89457	19981022
DE 69811818 E		DE 1998-69811818	19981022
DE 69811818 E		EP 1998-119763	19981022
US 6306226 B1		US 1998-177577	19981023

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 746200 B	Previous Publ	AU 9889457 A
DE 69811818 E	Based on	EP 911427 A

PRIORITY APPLN. INFO: JP 1997-292931 19971024
INT. PATENT CLASSIF.:
IPC RECLASSIF.: B05D0007-00 [I,A]; B05D0007-00 [I,C]; B05D0007-14 [I,A]; B05D0007-14 [I,C]; C23C0022-05 [I,C]; C23C0022-07 [I,A]; C23C0022-82 [I,C]; C23C0022-83 [I,A]; C23F0001-10 [I,C]; C23F0001-36 [I,A]; F28D0017-00 [I,A]; F28D0017-00 [I,C]; F28F0013-00 [I,C]; F28F0013-04 [I,A]; F28F0013-18 [I,A]; F28F0019-00 [I,C]; F28F0019-02 [I,A]; F28F0019-04 [I,A]; F28F0019-06 [I,A]

BASIC ABSTRACT:

EP 911427 A1 UPAB: 20060115

NOVELTY - **Surface treating** an aluminum alloy involves chemical etching at least part of the surface, applying a chemical conversion treatment with a liquid containing Zr **phosphate**, **Ti phosphate.** A protective **layer** containing a hydrophilic resin is formed on another protective layer. The hydrophilic resin contains at least one polymer with at least one type of non cross-linked hydrophilic functional group.

DETAILED DESCRIPTION - The Al alloy is a heat exchanger with solder bonded tubes and fins comprising Al or an Al alloy, and exhibits a reduction in weight of 0.02-20 g/m2 by the chemical etching stage. The chemical etching stage is carried out using an aqueous acid solution containing at least one of **sulfuric acid**, hydrofluoric acid, nitric acid, or phosphoric acid, or an aqueous alkaline solution containing at least one of **Na hydroxide**, **KOH** and alkali metal phosphate.

USE - For **surface treating**, particularly a heat exchanger having tubes and fins (claimed), used as air conditioning unit for motor cars.

ADVANTAGE - The surface coating is capable of maintaining good hydrophilicity, corrosion resistance and odor generation-prevention over a long period.

FILE SEGMENT: CPI; GMPI
MANUAL CODE: CPI: M14-D02

L55 ANSWER 6 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1996-115611 [12] WPIX
CROSS REFERENCE: 1996-105170
DOC. NO. CPI: C1996-036546 [12]
DOC. NO. NON-CPI: N1996-096725 [12]
TITLE: Magnetic toner compsn. for improved triboelectric characteristics - comprises resin **coated** with **phosphate titanium**, silica and/or metal oxide **surface** additive, for **improved** stability in high relative humidity
DERWENT CLASS: A89; E12; G08; P84; S06
INVENTOR: O'KEEFE D J; YOUNG E F
PATENT ASSIGNEE: (XERO-C) XEROX CORP
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 5489497	A	19960206	(199612)*	EN	7[0]	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 5489497	A	US 1994-299875	19940901

PRIORITY APPLN. INFO: US 1994-299875 19940901
INT. PATENT CLASSIF.:
IPC RECLASSIF.: G03G0009-08 [I,A]; G03G0009-08 [I,C]; G03G0009-083 [I,A]; G03G0009-083 [I,C]; G03G0009-09 [I,A]; G03G0009-09 [I,C]; G03G0009-097 [I,A]; G03G0009-097 [I,C]

BASIC ABSTRACT:
US 5489497 A UPAB: 20050511
A toner comprises:
(a) resin, magnetite treated or **coated** with a **phosphate titanium** component;
(b) charge additive; and
(c) surface additives comprising silica and metal oxides, the magnetic particles being present in an amount of 15-50 weight%.
Also claimed are:
(i) a negatively-charged single component toner comprising:
(1) thermoplastic resin,
(2) **phosphate titanium coated** magnetite particles,
(3) wax,
(4) charge additive, and
(5) surface additives comprising colloidal silica and metal oxides, the magnetic particles being present in an amount of 15-50 weight%.
(ii) a negatively charged toner comprising:
(a) crosslinked resin particles,
(b) **phosphate titanium coated** magnetite particles,
(c) low molecular wax components,
(d) chromate charge additive, and
(e) surface additives comprising a mixture of colloidal silica and strontium titanate; and
(iii) a method of imaging comprising:
(A) forming an electrostatic latent image on a photoreceptor,
(B) developing it with any of the above toner compsns., and then
(C) transferring the developed image to a suitable substrate;
(iv) a toner comprising 60 weight% styrene methacrylate copolymer; and
(v) a toner compsn. comprising resin particles.
USE - Useful for developing electrostatic latent colour images.
ADVANTAGE - These toners have reduced high relative humidity sensitivity and good admix and triboelectric characteristics. They provide high density, clean background, high resolution images even at high speed e.g. greater than 50 copies/minute.

DOCUMENTATION ABSTRACT:
US5489497

A toner comprises:
(a) resin, magnetite treated or **coated** with a **phosphate titanium** component;
(b) charge additive; and
(c) surface additives comprising silica and metal oxides, the magnetic particles being present in an amount of 15-50 weight%.
Also claimed are:
(i) a negatively-charged single component toner comprising:
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(2) **phosphate titanium coated** magnetite particles,
(3) wax,
(4) charge additive, and
(5) surface additives comprising colloidal silica and metal oxides, the magnetic particles being present in an amount of 15-50 weight%.
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(c) low molecular wax components,
(d) chromate charge additive, and
(e) surface additives comprising a mixture of colloidal silica and strontium titanate; and
(iii) a method of imaging comprising:
(A) forming an electrostatic latent image on a photoreceptor,
(B) developing it with any of the above toner compsns., and then
(C) transferring the developed image to a suitable substrate;
(iv) a toner comprising 60 weight% styrene methacrylate copolymer; and
(v) a toner compsn. comprising resin particles.
USE
Useful for developing electrostatic latent colour images.
ADVANTAGE
These toners have reduced high relative humidity sensitivity and good admix and triboelectric characteristics. They provide high density, clean background, high resolution images even at high speed e.g. greater than 50 copies/minute.
EXAMPLE
A toner was prepared by mixing, milling, crushing to an average volume dia. of 800 μ and jet milling to 11-12 μ average volume dia. a mixture containing 60 weight% styrene-n butyl methacrylate resin (51:49 weight%, crosslinked with 0.05 weight% divinylbenzene and 3 weight% benzoyl peroxide), 32 weight% magnetite (MAT 305 J1L, treated with phosphate titanium coupling agent), 5 weight% 550P polypropylene wax and 3 weight% charge additive TRH.
The resulting mixture was classified to an average dia. of 5 μ or less and ball milled with 0.4 weight% 'Aerosil' R812 (RTM: colloidal silica) and 2.5 weight% strontium titanate as external additives.
Conventionally evaluated, this toner produced initial solid area densities of 1.6 at 70°F/50% RH, 1.59 at 60°F/15% RH and 1.55 ad 80°F/80% RH.
After 3 days testing at 80°F/80% RH, density was 1.53. (STC)
PREFERRED MATERIALS
The toner compsn. is insensitive to relative humidity and provides an average optical density of 1.3-1.5.
The charge additive is a metal complex of a monoazo dye,

pref. chromate 3-hydroxy-4-(2-hydroxy-3,5-dinitrophenylazo-N-phenyl-2- naphthalene carboxamido-2-hydrogen-chromate) (TRH).

The resin particles are comprised of styrene acrylates, methacrylates or butadienes, or polyesters, pref. crosslinked styrene methacrylates, especially styrene butyl methacrylate crosslinked with divinylbenzene.

The wax has a weight average mol. weight of 1,000-20,000 and is pref. polypropylene or polyethylene.

The silica in (a) is a colloidal silica and the surface additives are a mixture of colloidal silicas and strontium titanate.

The charge additive is present in an amount of 0.05-5 weight%.

The compsn. in (b) further contains metal salts of fatty acids as external additives.

The surface additives in (a) are present in an amount of 0.05-5 weight%.

The strontium titanate in (b) is present in an amount of 0.05-5 weight%, pref. 1-5 weight%.

In compsn. (b) the colloidal silica is present at 0.05-2 weight% and the metal oxide is present at 1-5 weight%, pref. 2-4 weight%.

The metal oxide is pref. strontium titanate and the **phosphate titanium coating** is pref. present at 0.5-1 weight%.

The coated magnetic particles are pref. present at 20-35 weight%, pref. 20-35 weight%.

A preferred toner compsn. comprises:

(a) 60 weight% styrene methacrylate copolymer with 51 weight% styrene, and

(b) 49 weight% n-butyl methacrylate crosslinked with 0.05 weight% divinylbenzene, and

(c) 3 weight% benzoyl peroxide,

(d) 32 weight% **phosphate titanium coated** magnetite,

(e) 5 weight% wax,

(f) 3 weight% charge additive, and

(g) 0.4 weight% colloidal silica, and

(h) 2.5 weight% strontium titanate as external additives.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A12-L05C2; E31-D04; E31-P03; E35-K04; G06-G05; G06-G08B; G06-G18
EPI: S06-A04C1

L55 ANSWER 7 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1996-105170 [11] WPIX
CROSS REFERENCE: 1996-115611
DOC. NO. CPI: C1996-033178 [11]
TITLE: Magnetic compsn. for use in toners and single component developers - contains magnetite **surface treated** with phosphate titanium coupling cpd. giving toners and developers insensitive to relative humidity
DERWENT CLASS: G08; S06; V02
INVENTOR: O'KEEFE D J; YOUNG E F
PATENT ASSIGNEE: (XERO-C) XEROX CORP
COUNTRY COUNT: 2

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 5487841	A	19960130	(199611)*	EN	6[0]	

JP 08101533 A 19960416 (199625) JA 9[0]

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 5487841 A Div Ex		US 1994-299875	19940901
US 5487841 A		US 1995-464920	19950605
JP 08101533 A		JP 1995-215704	19950824

PRIORITY APPLN. INFO: US 1995-464920 19950605
US 1994-299875 19940901

INT. PATENT CLASSIF.:
IPC RECLASSIF.: G03G0009-08 [I,A]; G03G0009-08 [I,C]; G03G0009-083 [I,A]; G03G0009-083 [I,C]; G03G0009-09 [I,A]; G03G0009-09 [I,C]; G03G0009-097 [I,A]; G03G0009-097 [I,C]

BASIC ABSTRACT:

US 5487841 A UPAB: 20050511

A compsn. contains (i) resin particles, (ii) 15-50 weight% magnetite treated or **coated** with a **phosphate titanium** coupling component, (iii) wax, (iv) a charge additive and (v) a surface additive which is a mixture either of (a) colloidal silica and metal oxides or (b) colloidal silica and strontium titanate.

USE - The compsn. is used in toners and single component developers for high speed electrophotography, including developing colour images.

ADVANTAGE - The toners and developers are negatively charged and have good admix and triboelectric characteristics, are substantially insensitive to RH, and give high density smudge proof images with high resolution.

DOCUMENTATION ABSTRACT:

US5487841

A compsn. contains:

(i) resin particles;

(ii) 15-50 weight% magnetite treated or **coated** with a **phosphate titanium** coupling component;

(iii) wax;

(iv) a charge additive; and

(v) a surface additive which is a mixture either of (a) colloidal silica and metal oxides or (b) colloidal silica and strontium titanate.

USE

The compsn. is used in toners and single component developers for high speed electrophotography, including developing colour images.

ADVANTAGE

The toners and developers are negatively charged and have good admix and triboelectric characteristics, are substantially insensitive to RH, and give high density smudge proof images with high resolution.

EXAMPLE

Resin(60 weight%) (prepared from 51 weight% styrene and 49 weight% n-butyl-methacrylates crosslinked with 0.05 weight% divinylbenzene and/or 3 weight% benzoyl peroxide); spherical magnetite (size 0.23 μm) (32 weight%) coated with isopropyltri-dioctyl pyro-phosphato titanate, polypropylene wax (5 weight%) and charge additive TRH (3 weight%) were mixed, crushed, ground and classified and then mixed

with colloidal silica (0.4 weight%) and strontium titanate (2.5 weight%).

The resultant developer was used in an electrophotographic copier. The solid area density (SAD) on day 1 at 70 °F, 50% RH and at 60 °F, 15% RH was 1.6 and 1.59 resp. The SAD on days 1, 2 and 3 at 80 °F, 80% RH was 1.55, 1.55 and 1.53 resp. A comparative developer in which a spherical magnetite was coated with 9-octadecenyl 3-oxo butanoato bis-2-propanplato aluminium had a SAD on days 1, 2 and 3 at 80 °F, 80% RH of 1.55, 1.38 and 1.38 resp. which was an unacceptable drop off in density. (JR)

FILE SEGMENT: CPI; EPI
MANUAL CODE: CPI: G06-C04; G06-G05
EPI: S06-A04C1; V02-A01B

L55 ANSWER 8 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1989-274294 [38] WPIX
DOC. NO. CPI: C1989-121409 [21]
DOC. NO. NON-CPI: N1989-209265 [21]
TITLE: Humidity sensor - has humidity sensitive part of crystalline powder which is chemically **treating** coating on **surface** of metal
DERWENT CLASS: E12; J04; L03; S03; V01
INVENTOR: IMAI Y; ISHIKURA K; KOJIMA T; MORIYA Y; NAGANO K
PATENT ASSIGNEE: (HOOL-C) NIHON PARKERIZING CO LTD
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 01199401	A	19890810	(198938)*	JA	9[0]	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 01199401 A		JP 1987-263734	19871021
JP 01199401 A		JP 1988-69288	19880325

PRIORITY APPLN. INFO: JP 1988-69288 19880325
INT. PATENT CLASSIF.:
IPC RECLASSIF.: G01N0027-12 [I,A]; G01N0027-12 [I,C]; H01C0007-00 [I,A]; H01C0007-00 [I,C]

BASIC ABSTRACT:

JP 01199401 A UPAB: 20050429

The humidity sensor comprises a humidity sensitive part consisting of crystalline powder which is the chemically treated coating component on the surface of metal.

The chemically treated **coating** crystalline powder comprises **phosphate**, oxalate, or **titanium** -fluoro complex salt **coating** crystalline powder. The phosphate powder is made of at least one of Zn3(PO4)2.4H2O, Zn2Fe(PO4)2.4H2O, Zn2Ca(PO4)2.2H2O, Zn3(PO4)2.2H2O, AlPO4.2H2O, AlPO4, Fe3(PO4)2.8H2O, (Mn,Fe)5H2(PO4)4.4H2O, FePO4.2H2O, Fe6H2(PO4)4.4H2O, Mn5H2(PO4)4.4H2O, CaHPO4.2H2O, CaHPO4, MnHPO4, or those from which the crystal water is removed.

USE/ADVANTAGE - The humidity sensor is used for a dew sensor and rain drop sensor. Response time, life, stability, and mfg. cost of the sensor are improved.

FILE SEGMENT: CPI; EPI
MANUAL CODE: CPI: E31-K05; E33-G; E35-K04; J04-C04; L03-B01A3
EPI: S03-E02; V01-A02

L55 ANSWER 9 OF 9 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1986-300229 [46] WPIX
DOC. NO. CPI: C1986-130046 [21]
TITLE: Aqueous metal **surface conditioning** solution - is used prior to phosphate conversion **coating** and contains **titanium**, **pyrophosphate** and water soluble anionic organic cpd.
DERWENT CLASS: A97; M14
INVENTOR: MIYAWAKI K; MIYAWAKI T; YOSHIDA A
PATENT ASSIGNEE: (HOOL-C) NIHON PARKERIZING CO LTD
COUNTRY COUNT: 10

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
GB 2174719	A	19861112	(198646)*	EN	5[0]	
DE 3615294	A	19861113	(198647)	DE		
EP 201841	A	19861120	(198647)	DE		
JP 61257481	A	19861114	(198652)	JA		
AU 8656729	A	19861113	(198701)	EN		
BR 8602096	A	19870113	(198708)	PT		
GB 2174719	B	19890504	(198918)	EN		
JP 03038343	B	19910610	(199127)	JA		
EP 201841	B	19911016	(199142)	EN		
DE 3681958	G	19911121	(199148)	DE		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
GB 2174719 A		GB 1986-11556	19860512
JP 61257481 A		JP 1985-99278	19850510
JP 03038343 B		JP 1985-99278	19850510
DE 3615294 A		DE 1986-3615294	19860506
EP 201841 A		EP 1986-106161	19860506

PRIORITY APPLN. INFO: JP 1985-99278 19850510
INT. PATENT CLASSIF.:
MAIN/SEC.: C23C022-17
IPC RECLASSIF.: C23C0022-78 [I,C]; C23C0022-80 [I,A]
BASIC ABSTRACT:

GB 2174719 A UPAB: 20050426

An aqueous solution for **conditioning** a clean metal **surface** prior to applying a phosphate conversion coating comprises at least 3 ppm metallic Ti; 60-360 ppm pyrophosphate ion; at least 150 ppm total phosphate as PO4 and 2-300 ppm water soluble anionic cpd. The solution has a pH of 8-9.5.

USE/ADVANTAGE - Solution is used in car body production when a phosphate coating, pref. 1-3 g/m2 zinc phosphate coating is to be applied prior to painting. The performance of the solution is maintained for longer periods than prior art solns., e.g. after 10 days the phosphate coating weight increase is below 15% compared to 25-50% for prior art solns. The crystal structure remains dense and fine. Low quality water may be used to make up the solution

FILE SEGMENT: CPI
MANUAL CODE: CPI: A12-W12; M14-D02

=> fil hcap
FILE 'HCAPLUS' ENTERED AT 14:05:14 ON 31 OCT 2007
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FILE LAST UPDATED: 30 Oct 2007 (20071030/ED)

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FILE 'COMPENDEX' ENTERED AT 14:05:18 ON 31 OCT 2007

FILE LAST UPDATED: 29 OCT 2007 <20071029/UP>
FILE COVERS 1970 TO DATE.

<<< SIMULTANEOUS LEFT AND RIGHT TRUNCATION AVAILABLE IN THE BASIC INDEX >>>

=> d l67 iall hitstr 1-4

L67 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:772381 HCAPLUS
DOCUMENT NUMBER: 142:381140
ENTRY DATE: Entered STN: 22 Sep 2004
TITLE: Preparation of calcium phosphate **coating** on pure titanium substrate by electrodeposition method
AUTHOR(S): Zhao, Zhong-wei; Zhang, Gang; Li, Hong-gui
CORPORATE SOURCE: College of Metallurgical Science and Engineering, Central South University, Changsha, 410083, Peop. Rep. China
SOURCE: Journal of Central South University of Technology (English Edition) (2004), 11(2), 147-151

CODEN: JCSTFT; ISSN: 1005-9784
PUBLISHER: Journal of Central South University of Technology
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 72-9 (Electrochemistry)
Section cross-reference(s): 42, 49

ABSTRACT:
The influences of pH value, electrolyte temperature and loading time on depositing calcium phosphate **coating** on pure titanium substrate by electrodeposition process were investigated. The process was carried out with an electrochem. work-station supplying a d.c. power at potential of -0.8V (vs SCE). The electrolyte consists of 7 mmol.L-1 CaCl2.2H2O, 3 mmol.L-1 Ca(H2PO4)2.H2O and 2.5% H2O2. **NaOH** and **HCl** solns. were used to adjust pH value. The deposited samples were characterized by x-ray diffraction and scanning electron microscope. The comparison of the deposits obtained at lower and higher pH values demonstrates that the crystallization process at the interface is favored by high pH value. With temperature increasing, the deposited hydroxyapatite is occasionally of plate-like shape, and the width and the length of the deposited calcium phosphates at 65° are larger than those at 55°. Therefore, it is confirmed that the morphol. and microstructure of electrochem. deposited calcium phosphates can be regulated. Addnl., the **coating** formed in electrolyte with H2O2 additive is homogeneous and the evolution of H2 bubble can be eliminated.

SUPPL. TERM: calcium **phosphate coating**
electrodeposition **titanium**
INDEX TERM: Microstructure
(of calcium phosphate **coating** electrodeposited on pure titanium substrate)
INDEX TERM: Electrodeposition
(preparation of calcium phosphate **coating** on pure titanium substrate by)
INDEX TERM: **Coating** materials
(preparation of calcium phosphate **coating** on pure titanium substrate by electrodeposition method)
INDEX TERM: 7722-84-1, Hydrogen peroxide, reactions 7758-23-8
10043-52-4, Calcium chloride, reactions
ROLE: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(preparation of calcium phosphate **coating** on pure titanium substrate by electrodeposition in solution containing)
INDEX TERM: 12167-74-7P, Calcium hydroxide phosphate (Ca10(OH)2(PO4)6)
ROLE: CPS (Chemical process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PREP (Preparation); PROC (Process)
(preparation of calcium phosphate **coating** on pure titanium substrate by electrodeposition method)
INDEX TERM: 7440-32-6, Titanium, uses
ROLE: DEV (Device component use); MSC (Miscellaneous); USES (Uses)
(preparation of calcium phosphate **coating** on pure titanium substrate by electrodeposition method)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD.

REFERENCE(S):
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L67 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:475873 HCAPLUS
DOCUMENT NUMBER: 140:133711
ENTRY DATE: Entered STN: 23 Jun 2003
TITLE: Preparation of calcium phosphate **coatings** on **surfaces** of commercially pure titanium induced by simulated body fluid
AUTHOR(S): Deng, Wei; Wang, Yining; Jiang, Tao; Chen, Qun; Zhou, Bin; Cheng, Xiangrong
CORPORATE SOURCE: College & Hospital of Stomatology, Wuhan University, Wuhan, 430079, Peop. Rep. China
SOURCE: Shengwu Yixue Gongchengxue Zazhi (2002), 19(3), 374-377
CODEN: SYGZF2; ISSN: 1001-5515
PUBLISHER: Shengwu Yixue Gongchengxue Zazhi
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
CLASSIFICATION: 63-7 (Pharmaceuticals)
ABSTRACT:
Calcium phosphate **coatings** on **surfaces** of com. pure titanium were prepared through induction of simulated body fluid. All

samples were divided into three groups and subjected to three different ***surface*** **treatments**, i. e. untreated group, group etched with mixed acid of 1:1 **HCl** and **H2SO4** followed by immersion in 6N **NaOH** solution at 60°C for 24 h and group etched with mixed acid of 1:1 **HCl** and **H2SO4** followed by immersion in 6N **NaOH** solution at 60°C for 24 h then heated at 600°C for 1 h. After soaked in simulated body fluid for two weeks, a thin calcium phosphate **coating** was precipitated on the ***surfaces*** of the two **treated** samples. The results of scanning electron microscope (SEM) and energy dispersive x-ray detector (EDX) showed that calcium phosphate **coatings** on the ***surfaces*** of the titanium samples etched and heated were more even than the titanium samples etched without heating. The anal. of x-ray diffraction (x-ray diffraction) demonstrated the main component of calcium phosphate **coating** was hydroxyapatite.

SUPPL. TERM: calcium **phosphate coating** heating **titanium** simulated body fluid

INDEX TERM: X-ray detectors
(energy dispersive; preparation of calcium phosphate **coatings** on **surfaces** of com. pure titanium induced by simulated body fluid)

INDEX TERM: **Coating** materials
Heating
Scanning electron microscopes
Surface treatment
X-ray diffractometry
(preparation of calcium phosphate **coatings** on **surfaces** of com. pure titanium induced by simulated body fluid)

INDEX TERM: Body fluid
(simulated; preparation of calcium phosphate **coatings** on **surfaces** of com. pure titanium induced by simulated body fluid)

INDEX TERM: 1306-06-5, Hydroxyapatite 10103-46-5, Calcium phosphate
ROLE: MOA (Modifier or additive use); USES (Uses)
(preparation of calcium phosphate **coatings** on **surfaces** of com. pure titanium induced by simulated body fluid)

INDEX TERM: 7440-32-6, Titanium, biological studies
ROLE: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(preparation of calcium phosphate **coatings** on **surfaces** of com. pure titanium induced by simulated body fluid)

L67 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 1997:755260 HCAPLUS
DOCUMENT NUMBER: 128:53160
ENTRY DATE: Entered STN: 04 Dec 1997
TITLE: Fast precipitation of calcium **phosphate layers** on **titanium** induced by simple chemical treatments
AUTHOR(S): Wen, H. B.; Wolde, J. G. C.; de Wijn, J. R.; Liu, Q.; Cui, F. Z.; de Groot, K.
CORPORATE SOURCE: Biomaterials Res. Group, Leiden Univ., Bilthoven, 3723 MB, Neth.
SOURCE: Biomaterials (1997), 18(22), 1471-1478

CODEN: BIMADU; ISSN: 0142-9612
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 63-7 (Pharmaceuticals)
ABSTRACT:
A simple two-step chemical treatment, i.e. etching with **HCl** and ***H2SO4*** followed by immersion in boiling dilute **NaOH** solution, has been developed by our group bioactive microporous titanium ***surfaces*** allowing fast deposition of a calcium phosphate ***layer*** (CPL) from an in vitro supersatd. calcification solns. (SCS). In this work, a precalcification (Pre-Ca) procedure was applied by soaking the two-step treated titanium in Na2HPO4 and then saturated Ca(OH)2 solution before immersion in SCS to accelerate further the CPL precipitation The **treated** titanium **surfaces** with Pre-Ca were characterized after 1, 2, 4, 8 and 16 h of immersion in SCS by means of SEM together with energy dispersive x-ray anal., x-ray diffraction and IR absorption anal. It was observed that the CPL precipitation rate with Pre-Ca averaged 1 μm h-1, twice as fast as without Pre-Ca. No precipitation was observed on untreated titanium with Pre-Ca up to day 14 of immersion in the SCS.

SUPPL. TERM: calcium **phosphate** pptn **titanium**
chem treatment

INDEX TERM: Calcification
Coating process
(fast precipitation of calcium **phosphate** **layers** on **titanium** induced by simple chemical treatments)

INDEX TERM: Prosthetic materials and Prosthetics
(implants; fast precipitation of calcium **phosphate** **layers** on **titanium** induced by simple chemical treatments)

INDEX TERM: 10103-46-5, Calcium phosphate
ROLE: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process); USES (Uses)
(fast precipitation of calcium **phosphate** **layers** on **titanium** induced by simple chemical treatments)

INDEX TERM: 1305-62-0, Calcium hydroxide, reactions 7558-79-4, Disodium phosphate **7647-01-0**, Hydrochloric acid, reactions **7664-93-9**, **Sulfuric acid**, reactions
ROLE: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(fast precipitation of calcium **phosphate** **layers** on **titanium** induced by simple chemical treatments)

INDEX TERM: 7440-32-6, Titanium, biological studies
ROLE: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(fast precipitation of calcium **phosphate** **layers** on **titanium** induced by simple chemical treatments)

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD.

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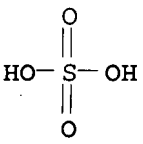
IT **7647-01-0**, Hydrochloric acid, reactions **7664-93-9**, **Sulfuric acid**, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(fast precipitation of calcium **phosphate layers** on **titanium** induced by simple chemical treatments)

RN 7647-01-0 HCAPLUS
CN Hydrochloric acid (CA INDEX NAME)

HCl

RN 7664-93-9 HCAPLUS
CN Sulfuric acid (CA INDEX NAME)



L67 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:73396 HCAPLUS
DOCUMENT NUMBER: 126:194418
ENTRY DATE: Entered STN: 01 Feb 1997
TITLE: Preparation and chemical properties of a novel **layered** cerium(IV) phosphate
AUTHOR(S): Tsuhako, Mitsutomo; Danjo, Mayumi; Baba, Yoshinobu; Murakami, Masahiko; Nariai, Hiroyuki; Motooka, Itaru
CORPORATE SOURCE: Dep. Chem., Kobe Pharmaceutical Univ., Kobe, 658, Japan
SOURCE: Bulletin of the Chemical Society of Japan (1997), 70(1), 143-148
CODEN: BCSJA8; ISSN: 0009-2673
PUBLISHER: Nippon Kagakkai
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 78-5 (Inorganic Chemicals and Reactions)
ABSTRACT:
A synthetic method of a novel Ce(IV) bis(hydrogenphosphate) dihydrate, $Ce(HPO_4)_2.2H_2O$, hereafter referred to as $CeP.2H_2O$, was established by the hydrothermal reaction of Ce(IV) oxide with H_3PO_4 in an autoclave. The preparation of $CeP.2H_2O$ was significantly affected by the reaction conditions: the mixing ratio (P_2O_5/CeO_2) of CeO_2 and H_3PO_4, heating temperature and time, and H_2O vapor pressure. The optimum condition for the preparation of $CeP.2H_2O$ was the mixing ratio of 1.5-2.0, heating temperature 175-200°, heating time 5 h, and H_2O vapor pressure 5.0-7.0 atmospheric The results of x-ray powder diffraction, fluorescent x-ray anal., DTA and TG (DTA-TG), IR spectrum, and phase transition showed that $CeP.2H_2O$ is a novel crystalline ***layered*** Ce(IV) phosphate having a interlayer distance d = 18.0 Å, longer than any **layered phosphates** (Zr(IV), ***Ti*** (IV), and Sn(IV) phosphates) so far reported. The reversible phase transition of $CeP.2H_2O$ occurred as follows, when exposed to various relative humidities:$Ce(HPO_4)_2 \cdot 0.33H_2O$ .dblarw. P2O597% $Ce(HPO_4)_2 \cdot 2H_2O$ .dblarw.97%33%$Ce(HPO_4)_2 \cdot 1.33H_2O$ .dblarw.75%33%$Ce(HPO_4)_2 \cdot 0.33H_2O$ .dblarw.97%P_2O_5 $Ce(HPO_4)_2 \cdot 0.33H_2O$. $CeP.2H_2O$ dissolved slightly in distilled H_2O and ***HCl*** , and much more in aqueous **NaOH** and aqueous NH_3. $CeP.2H_2O$ effectively adsorbed NH_3 in an aqueous solution and NH_3 gas.

SUPPL. TERM: cerium phosphate hydrate prepn chem property; phase transition cerium phosphate hydrate; thermal decompn cerium phosphate hydrate
INDEX TERM: Thermal decomposition

(of cerium(IV) phosphate hydrate)
INDEX TERM: Phase transition
(of cerium(IV) phosphate hydrate in various rel. humidity environments)
INDEX TERM: 1306-38-3, Cerium oxide (CeO2), reactions 7664-38-2, Phosphoric acid, reactions
ROLE: RCT (Reactant); RACT (Reactant or reagent)
(for preparation of cerium(IV) phosphate dihydrate)
INDEX TERM: 63397-78-4, Cerium phosphate (Ce(HPO4)2) hydrate (1:1.33) 186539-63-9
ROLE: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); RCT (Reactant); FORM (Formation, nonpreparative); PROC (Process); RACT (Reactant or reagent)
(formation from reversible phase transition of cerium(IV) phosphate dihydrate and rehydration)
INDEX TERM: 170453-20-0P
ROLE: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(preparation, XRD, phase transition, thermal decompn.and NH3 adsorption)
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD.
REFERENCE(S):

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L48 ANSWER 1 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1217010 HCAPLUS
DOCUMENT NUMBER: 144:260608
TITLE: Effects of TCP/HA-**coating** titanium on the adhesion behavior of human gingival fibroblasts
AUTHOR(S): Zhao, Baohong; Bai, Wei; Feng, Hailan; Cui, Fuzhai
CORPORATE SOURCE: Department of Prosthodontics ,Hospital for Stomatology, China Medical University, Shenyang, 110002, Peop. Rep. China
SOURCE: Zhonghua Kouqiang Yixue Zazhi (**2004**), 39(6), 501-504
CODEN: ZKYZE2; ISSN: 1002-0098
PUBLISHER: Zhonghua Yixuehui Zazhishe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB The effects of hydroxyapatite (HA) and porous tricalcium phosphate/hydroxyapatite (TCP/HA)-**coating** Ti on the

adhesion behavior of human gingival fibroblasts (HGFs) were studied. **Coatings** of HA and duplex phases TCP/HA on Ti were formed by ion beam assisted deposition (IBAD) **method.** The attachment, spreading, extracellular matrix production, and focal adhesion plaque formation of HGFs were studied on com. pure (CP) Ti, HA-**coated** CP Ti, and porous TCP/HA-**coated** CP Ti. After incubation of HGFs on these substrates, the number of attached cell, the area of cell spreading, immunostained ECM including fibronectin and type I collagen, and vinculin were quantified by morphometric anal. using immunofluorescence microscope. TCP/HA and HA **coatings** exhibited that the attached cell number and cell spreading area were greater than those of CP titanium, and the formation of focal adhesion plaque was earlier than that of uncoated substrate. The number of attached cell and the formation of type I collagen on TCP/HA were more than those on Ti and HA. After 24-h incubation on TCP/HA **surface**, the number of attached cell was (198.1±27) and the fluorescent intensity of type I collagen was (154.10±31.56). While under the same condition, the corresponding nos. for the CP Ti were (125.1±29.9) and (132.63±35.26). The differences between the two groups were significant. The porous TCP/HA **coating** significantly facilitated the adherence of human gingival fibroblasts to Ti **surface** and could **improve** the biocompatibility of Ti.

CC 63-7 (Pharmaceuticals)

ST **titanium** calcium **phosphate** hydroxyapatite **coating** human gingiva fibroblast; adhesion gingiva fibroblast calcium phosphate hydroxyapatite **coating**

IT Adhesion, biological
Biocompatibility
Coating materials
Extracellular matrix
Fibroblast
Gingiva
Human
(effects of TCP/HA-**coating** titanium on adhesion behavior of human gingival fibroblasts)

IT Fibronectins
Vinculin
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(effects of TCP/HA-**coating** titanium on adhesion behavior of human gingival fibroblasts)

IT Collagens, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type I; effects of TCP/HA-**coating** titanium on adhesion behavior of human gingival fibroblasts)

IT 1306-06-5, Hydroxyapatite 7440-32-6, Titanium, biological studies 7758-87-4, Tricalcium phosphate
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(effects of TCP/HA-**coating** titanium on adhesion behavior of human gingival fibroblasts)

L48 ANSWER 2 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:560018 HCAPLUS
DOCUMENT NUMBER: 143:82033
TITLE: Acidic bath for phosphate **coating** of a titanium-alloy **surface** in structural applications
INVENTOR(S): Pivovarova, L. N.; Zakharova, L. V.; Kupradze,

S. A.
PATENT ASSIGNEE(S): Federal'noe Gosudarstvennoe Unitarnoe Predpriyatie "Vserossiiskii Nauchno-Issledovatel'skii Institut Aviatsionnykh Materialov" FGUP "VIAM", Russia
SOURCE: Russ., No pp. given
CODEN: RUXXE7
DOCUMENT TYPE: Patent
LANGUAGE: Russian
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RU 2255139	C1	20050627	RU 2003-137751 <--	200312 30

PRIORITY APPLN. INFO.: RU 2003-137751 <-- 200312 30

AB The Ti-alloy **surface** is pretreated by degreasing, water rinsing, and etching with oxidizing acid mixture containing HNO3 and HF (or treated with MgO). The pretreated **surface** is **coated** with metal phosphate in acidic bath containing phosphate ions 4.0-75.0, Zn+2 ions 3.0-16.0, sulfate ions 2.0-7.0, nitrate ions 41.0-206.0, fluoride ions 1.0-3.5, and tartrate ions 1.8-9.0 g/L. The Ti-alloy **surface** is **coated** in the phosphating bath at pH of 2.0-3.2 and 18-30°, followed by rinsing and drying. The phosphate-**coated surface** has increased adhesion for application of lacquer **coatings** without conventional hydriding.

IC ICM C23C022-36
CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 42
ST **titanium** alloy **surface phosphate coating** aq acidic bath; lacquer **coating** titanium alloy **surface** phosphating aq bath
IT **Coating process**
(phosphating, Ti-alloy; aqueous acidic bath for **phosphate coating** of **titanium**-alloy **surface**)
IT Etching
(pretreatment, of Ti-alloy **surface**; aqueous acidic bath for **phosphate coating** of **titanium**-alloy **surface**)
IT Titanium alloy, base
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(**coating** of; aqueous acidic bath for **phosphate coating** of **titanium**-alloy **surface**)
IT 12670-26-7, VT20
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(**coating** of; aqueous acidic bath for **phosphate coating** of **titanium**-alloy **surface**)
IT 1309-48-4, Magnesia, **processes**
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)

(**surface** pretreatment with; aqueous acidic bath for **phosphate coating** of **titanium**-alloy **surface**)

L48 ANSWER 3 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:760271 HCAPLUS
DOCUMENT NUMBER: 141:282738
TITLE: Rapid **coating** of Ti6Al4V at room temperature with a calcium phosphate solution similar to 10+ simulated body fluid
AUTHOR(S): Tas, A. Cuneyt; Bhaduri, Sarit B.
CORPORATE SOURCE: School of Materials Science and Engineering, Clemson University, Clemson, SC, 29634, USA
SOURCE: Journal of Materials Research (**2004**), 19(9), 2742-2749
CODEN: JMREEE; ISSN: 0884-2914
PUBLISHER: Materials Research Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB In this paper, we report the utilization of high ionic strength (>1100 mM) calcium phosphate solns. in depositing 20-65-μm-thick, bonelike apatitic calcium phosphate on Ti6Al4V within 2-6 h, at room temperature The super-strength solution used here multiplied the concns. of calcium and phosphate ions in human plasma or simulated body fluid (SBF) by a factor of ten. The interesting features of the technique are given in the following. First, the solns. did not contain any buffering agents, such as Tris or Hepes. Second, during the **process**, homogeneous formation of calcium phosphate nano-clusters took place. However, their presence did not adversely affect the **coating process.** Third, other than simple **surface treatments** to begin with, no other addnl. intermediate steps were necessary. The only step needed after the preparation of the solution from reagents is the addition of proper amts. of NaHCO3 to raise the pH to 6.5 prior to the **coating procedure.** Fourth, there is no CO2 bubbling required, and hence, this is a robust **process.** Fifth, such a **procedure** led to a significant enhancement of **coating** rate enabling the formation in as little as 2-6 h. **Coating** proceeded with a linear rate. Sixth, the adhesion strength (12±2 MPa) of the present **coatings** was comparable to **coatings** produced by soaking in 1.5+ SBF solns. over a prolonged period of time, typically two to three weeks. Finally, the carbonate content (8%) and Ca/P molar ratio (1.57) qualify the **coating** as bonelike.

CC 63-7 (Pharmaceuticals)
ST **Ti coating** calcium **phosphate** bone
IT Bone
(artificial; rapid **coating** of Ti6Al4V at room temperature with a calcium phosphate solution similar to 10+ simulated body fluid)
IT Adhesion, physical
Body fluid
Coating process
Human
Ionic strength
Prosthetic materials and Prosthetics
(rapid **coating** of Ti6Al4V at room temperature with a calcium phosphate solution similar to 10+ simulated body fluid)
IT 59977-62-7, Calcium-deficient apatite
RL: FMU (Formation, unclassified); THU (Therapeutic use); BIOL

(Biological study); FORM (Formation, nonpreparative); USES (Uses)
(rapid **coating** of Ti6Al4V at room temperature with a calcium phosphate solution similar to 10+ simulated body fluid)

IT 12743-70-3, Ti6Al4V
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(rapid **coating** of Ti6Al4V at room temperature with a calcium phosphate solution similar to 10+ simulated body fluid)

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 4 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:599891 HCAPLUS
DOCUMENT NUMBER: 141:427941
TITLE: **Surface modification** of anodized **titanium** for calcium **phosphate coatings**
AUTHOR(S): Roest, Richard; Ben-Nissan, Besim
CORPORATE SOURCE: Department of Chemistry, Materials and Forensic Science, University of Technology, Sydney, NSW, 2007, Australia
SOURCE: Engineering Materials 2001, Proceedings, Melbourne, Australia, Sept. 23-26, 2001 (**2001**), 3/115-3/120. Editor(s): Pereloma, Elena; Raviprasad, Krishnamurthy. Institute of Materials Engineering, Australasia Ltd.: North Melbourne, Australia.
CODEN: 69FQCA
DOCUMENT TYPE: Conference
LANGUAGE: English

AB The anodization of titanium involves the formation of a thin, dense and compact, oxide **layer.** In this **process** the rutile structure of the original titanium oxide is converted into an anatase structure. It is this anatase structure and how it influences the bonding properties of the sol gel **coating** of hydroxyapatite (HAp) was the main aim of this research project. The titanium samples were anodized in phosphoric acid (H3PO4) at varying concns. with one solution utilizing sulfuric acid (H2SO4) in addition to the phosphoric acid. The samples were also anodized at 3 different voltages, 12V, 15V and 20V for 30 min. Both anodized and unanodized samples were spin **coated** with alkoxide-derived hydroxyapatite and examined with x-ray diffraction and SEM. The samples anodized utilizing a mixture of phosphoric acid (H3PO4)/ sulfuric acid (H2SO4) solution were found to produce a more adherent and homogenous HAp **coated surface.** It is envisaged that this improved anodizing technique could aid the generation of more effective HAp **coatings** on titanium and titanium alloy orthopedic and dental implants.

CC 63-7 (Pharmaceuticals)
ST titanium anodizing hydroxyapatite **coating** implant
IT Sol-gel **processing**
(**coating; surface modification** of anodized **titanium** for calcium **phosphate coatings**)
IT Prosthetic materials and Prosthetics
(implants; **surface modification** of anodized **titanium** for calcium **phosphate coatings**)

IT **Coating process**
(sol-gel; **surface modification** of anodized **titanium** for calcium **phosphate coatings**)
IT 7664-38-2, Phosphoric acid, properties 7664-93-9, Sulfuric acid, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(**surface modification** of anodized **titanium** for calcium **phosphate coatings**)
IT 1306-06-5P, Hydroxyapatite
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**surface modification** of anodized **titanium** for calcium **phosphate coatings**)
IT 1317-80-2, Rutile
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**surface modification** of anodized **titanium** for calcium **phosphate coatings**)
IT 762-04-9, Diethyl phosphite 2914-17-2, Calcium diethoxide
RL: RCT (Reactant); RACT (Reactant or reagent)
(**surface modification** of anodized **titanium** for calcium **phosphate coatings**)
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 5 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:922503 HCAPLUS
DOCUMENT NUMBER: 139:396989
TITLE: Formation of **coatings** on aluminum automobile bodies, chemical conversion **treatment** liquids therefor, primer **surfacers**, and double-**layer coatings** formed thereby
INVENTOR(S): Ando, Katsutoshi; Murai, Yasuto; Suzuki, Eiji; Hayashi, Noboru; Ueki, Mitsuhiko; Tanaka, Yasuo; Shinomiya, Mitsuo
PATENT ASSIGNEE(S): Honda Motor Co., Ltd., Japan; Nippon Paint Co., Ltd.
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003334490	A	20031125	JP 2003-68121	200303 13

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PRIORITY APPLN. INFO.: JP 2002-68611 A

200203
13

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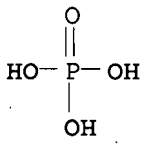
AB The title **process** comprises (1) degreasing of **coated surface** of Al-made automobile bodies, (2) applying and drying of the chemical conversion treatment liquid containing P-free Zr, Ni-free Zn phosphate, Zr **phosphate**, or **Ti phosphate**, (3) applying, drying, and curing of the primer **surfacer** containing a vehicle containing polyesters 40-80, melamine resin 10-50, and epi-bis epoxy resins 5-30 parts as solid and pigments comprising flat pigments, anticorrosive pigments, other color pigments, and body pigments in the solid ratio of the vehicle and pigments of 30/70 to 80/20, and (4) applying, drying, and curing of top **coating**. Thus, Al alloy (JIS A6022) was degreased, washed, immersed in a liquid containing 0.1 g/L Zr ion and 0.125 g/L complex fluoride at pH 3.0 and 50° for 90 s, left at 25° for 30 s, washed, dried, **coated** with a primer **surfacer** comprising polyester 55, epi-bis epoxy resin 9, Cymel 370 (methylated melamine resin) 9, talc 2, TiO2 36, carbon black 2, BaSO4 22, Ca phosphite 3, organic bentonite 0.5, and crosslinked resin particles 1.0 part, baked, further **coated** with Superlac M 80 (acrylic-melamine resin metallic **coating**) and Superlac O 80 (acrylic-melamine resin top clear), and baked to form **coatings** showing good corrosion and water resistance and appearance.

IT **13765-94-1**
RL: NUU (Other use, unclassified); USES (Uses)
(conversion treatment liquid containing; formation of double-**layer coatings** on automobile aluminum bodies)

RN 13765-94-1 HCAPLUS

CN Phosphoric acid, titanium salt (8CI, 9CI) (CA INDEX NAME)



●x Ti(x)

IC ICM B05D007-14
ICS B05D007-24; C09D005-00; C09D007-12; C09D161-28; C09D163-00; C09D167-00; C23C022-07; C23C022-12; C23C022-78; C23C028-00

CC 42-2 (Coatings, Inks, and Related Products)
Section cross-reference(s): 56

ST automobile aluminum body **coating** zirconium pretreatment; polyester melamine epoxy primer **surfacer** aluminum; anticorrosive **coating** automobile aluminum body

IT Aminoplasts
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(acrylic, top **coat**; formation of double-**layer coatings** on automobile aluminum bodies)

IT Acrylic polymers, uses
Polyesters, uses

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(aminoplast-, top **coat**; formation of double-**layer coatings** on automobile aluminum bodies)

IT **Coating** materials
Primers (paints)
(anticorrosive; formation of double-**layer coatings** on automobile aluminum bodies)

IT Automobiles
(bodies; formation of double-**layer coatings** on automobile aluminum bodies)

IT **Coating process**
(conversion; formation of double-**layer coatings** on automobile aluminum bodies)

IT Bentonite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic, primer **surfacer** containing; formation of double-**layer coatings** on automobile aluminum bodies)

IT Carbon black, uses
Clays, uses
RL: MOA (Modifier or additive use); USES (Uses)
(pigments, primer **surfacer** containing; formation of double-**layer coatings** on automobile aluminum bodies)

IT Aminoplasts
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyester-, top **coat**; formation of double-**layer coatings** on automobile aluminum bodies)

IT Aminoplasts
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(primer **surfacer** containing, Cymel 370, Cymel 254, U-Van 20N60; formation of double-**layer coatings** on automobile aluminum bodies)

IT Epoxy resins, uses
Polyesters, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(primer **surfacer** containing; formation of double-**layer coatings** on automobile aluminum bodies)

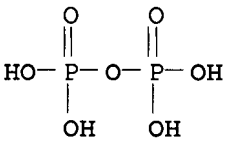
IT Epoxy resins, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(top **coat**; formation of double-**layer coatings** on automobile aluminum bodies)

IT 7440-67-7, Zirconium, uses 7779-90-0, Zinc phosphate **13765-94-1** 13765-95-2, Zirconium phosphate
RL: NUU (Other use, unclassified); USES (Uses)
(conversion treatment liquid containing; formation of double-**layer coatings** on automobile aluminum bodies)

IT 203871-83-4, JIS A6022
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(formation of double-**layer coatings** on

automobile aluminum bodies)
IT 7429-90-5, Aluminum, uses 7727-43-7, Barium sulfate 7784-30-7, Aluminum phosphate 13463-67-7, Titanium dioxide, uses 13780-04-6, Calcium phosphonate 14807-96-6, Talc, uses
RL: MOA (Modifier or additive use); USES (Uses)
(pigments, primer **surfacer** containing; formation of double-**layer coatings** on automobile aluminum bodies)
IT 9003-08-1, Melamine resin
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(primer **surfacer** containing, Cymel 370, Cymel 254, U-Van 20N60; formation of double-**layer coatings** on automobile aluminum bodies)
IT 132324-75-5, Superlac M 80 194880-07-4, Superlac M 180 428819-55-0, Macflow O 590 Clear 436859-88-0, Superlac O 80 clear 625442-97-9, Orga S 30
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(top **coat**; formation of double-**layer coatings** on automobile aluminum bodies)

L48 ANSWER 6 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:665166 HCAPLUS
DOCUMENT NUMBER: 140:47296
TITLE: Chemical **modification** of titanium **surface**: effect on apatite deposition
AUTHOR(S): Rohanizadeh, R.; Al-Fraih, W. A.; Harsono, M.; LeGeros, R. Z.
CORPORATE SOURCE: Department of Biomaterials and Biomimetics, New York University College of Dentistry, New York, NY, 10010, USA
SOURCE: Key Engineering Materials (**2003**), 240-242(Bioceramics), 461-464
CODEN: KEMAEY; ISSN: 1013-9826
PUBLISHER: Trans Tech Publications Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The purpose of this study was to develop a **method** of producing a **layer** of calcium/**titanium phosphate** on **titanium** (**Ti**) substrate and determine the effect of such **layer** on apatite deposition from calcifying solution Com. pure Ti disks were dipped in different solns. containing varying concns. of CaCO3 (Ca) and H3PO4 (HP), air-dried, and then heated at 900°. Apatite deposition on the chemical/heat treated disks was performed by immersing the Ti disks in a supersatd. calcium phosphate solution X-ray diffraction anal. demonstrated that high concns. of Ca and HP promoted the formation of Ca2P2O7 and TiP2O7, and lower concns. promoted only Ca2P2O7. The formation of Ca2P2O7 and TiP2O7 on Ti substrate improved both the deposition and adhesion of apatite **coating.**
IT **13470-09-2, Titanium pyrophosphate** (TiP2O7)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(chemical **modification** of titanium **surface**: effect on apatite deposition)
RN 13470-09-2 HCAPLUS
CN Diphosphoric acid, titanium(4+) salt (1:1) (CA INDEX NAME)



● Ti(IV)

CC 63-7 (Pharmaceuticals)
ST titanium apatite **coating** bone
IT Bone
(artificial; chemical **modification** of titanium **surface**: effect on apatite deposition)
IT **Coating process**
Prosthetic materials and Prosthetics
(chemical **modification** of titanium **surface**: effect on apatite deposition)
IT 1306-06-5, Hydroxyapatite 1317-80-2, Rutile 7790-76-3, Calcium pyrophosphate (Ca2P2O7) **13470-09-2, Titanium pyrophosphate** (TiP2O7)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(chemical **modification** of titanium **surface**: effect on apatite deposition)
IT 7440-32-6, Titanium, biological studies
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(chemical **modification** of titanium **surface**: effect on apatite deposition)
IT 471-34-1, Calcium carbonate (CaCO3), **processes** 7664-38-2, Phosphoric acid, **processes**
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(chemical **modification** of titanium **surface**: effect on apatite deposition)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 7 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:16221 HCAPLUS
DOCUMENT NUMBER: 138:224813
TITLE: Effect of the duration of a polarizing-voltage pulse under conditions of microplasma discharge on current-voltage characteristics and properties of **coatings** on titanium and its alloys
AUTHOR(S): Mamaeva, V. A.; Vybornova, S. N.; Dimaki, V. A.; Mamaev, A. I.
CORPORATE SOURCE: Inst. Fiz. Prochnosti i Materialoved., SO RAN, Tomsk, Russia
SOURCE: Fizika i Khimiya Obrabotki Materialov (**2002**), (5), 21-25
CODEN: FKOMAT; ISSN: 0015-3214
PUBLISHER: Interkontakt Nauka
DOCUMENT TYPE: Journal

LANGUAGE: Russian
AB Effect of anode voltage pulse duration on the current-voltage characteristics and voltage and time dependencies of specific active resistance and specific capacity in the **process** of microplasma **coating** deposition on Ti and Ti-based alloys in electrolyte solns. were studied. Microplasma treatment in electrolyte solns. at the voltage of up to 1000 V and anode pulse duration in the range of 30-500 μs results in significant changes in **surface** structure and composition
CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 72
ST **titanium** alloy borate **phosphate coating** pulse electroplating anodic polarization
IT Borates
Sulfates, **processes**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(borate-sulfate **coating**; effect of **process** parameters on characteristics of pulse electroplated borate-sulfate **coatings** on titanium and titanium alloys)
IT **Coating** materials
(borate-sulfate; effect of **process** parameters on characteristics of pulse electroplated borate-sulfate **coatings** on titanium and titanium alloys)
IT Anodic polarization
Surface resistance
(effect of **process** parameters on characteristics of pulse electroplated borate-sulfate **coatings** on titanium and titanium alloys)
IT Electrodeposition
(pulse; effect of **process** parameters on characteristics of pulse electroplated borate-sulfate **coatings** on titanium and titanium alloys)
IT Electric potential
(pulsed; effect of **process** parameters on characteristics of pulse electroplated borate-sulfate **coatings** on titanium and titanium alloys)
IT 12743-70-3, VT6 12768-62-6, VT5 39462-06-1, VT1-0
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(effect of **process** parameters on characteristics of pulse electroplated borate-sulfate **coatings** on titanium and titanium alloys)

L48 ANSWER 8 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:788085 HCAPLUS
DOCUMENT NUMBER: 137:37585
TITLE: Bioceramic **coatings** produced by laser cladding
AUTHOR(S): Lusquinos, F.; Boutinguiza, M.; Pou, Juan; Arias, J. L.; Soto, R.; Leon, B.; Perez-Amor, Mariano
CORPORATE SOURCE: Dpto. Fisica Aplicada, Universidad de Vigo, Vigo, 36280, Spain
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (**2001**), 4419(4th Iberoamerican Meeting on Optics and 7th Latin American Meeting on Optics, Lasers, and Their Applications, 2001), 78-81

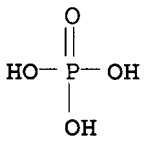
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Laser cladding has become an accepted technique for **improving** the **surface** properties of materials. This **surfacing** technique is able to modify near **surface** composition and microstructure in order to improve the physico-chemical and mech. properties such as hardness, wear resistance, corrosion resistance or high temperature behavior. Due to these characteristics, we have adopted this technique to be used in the field of biomaterials. The statement of our purpose has been to **coat** the **surface** of titanium alloy substrates used in orthopedical implants with a calcium phosphate (CaP) bioceramics in order to promote the growth of the bone when the implant is inserted in the body. Therefore, the main objective is to obtain a bioceramic **coating** with the inherent profits derived from the laser **surfacing** technique. In this work, we have studied the influence of the relevant parameters of the laser **processing** on the composition and morphol. of the **coatings** obtained. The characterization of the **coated** samples has been carried out by X-Ray Diffraction (XRD), SEM and Energy Dispersive X-Ray Anal. (EDX). The results show that the laser **surface** cladding technique allows to apply a calcium phosphate **layer** onto the **surface** of a titanium alloy without the necessity of any previous **treatment** of the **surface.**

IT **13765-94-1**
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(bioceramic **coatings** produced by laser cladding)

RN 13765-94-1 HCAPLUS

CN Phosphoric acid, titanium salt (8CI, 9CI) (CA INDEX NAME)



●x Ti(x)

CC 63-7 (Pharmaceuticals)

ST hydroxyapatite titanium alloy implant **coating** laser cladding

IT **Coating** materials
Hardness (mechanical)
Interface
Laser cladding
(bioceramic **coatings** produced by laser cladding)

IT Prosthetic materials and Prosthetics
(implants; bioceramic **coatings** produced by laser cladding)

IT Corrosion
Wear
(resistance; bioceramic **coatings** produced by laser

cladding)
IT 12049-50-2, Calcium titanate **13765-94-1**
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(bioceramic **coatings** produced by laser cladding)
IT 1306-06-5, Hydroxyapatite 12743-70-3, Ti6Al4V
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(bioceramic **coatings** produced by laser cladding)
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 9 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:346018 HCAPLUS
DOCUMENT NUMBER: 135:47627
TITLE: Electrodeposition **process** and structural characteristics of hydroxyapatite **coatings**
AUTHOR(S): Liu, Rong-fang; Xiao, Xiu-feng; Chen, Gu-yong
CORPORATE SOURCE: Fujian Teachers University, Fuzhou, 350007, Peop. Rep. China
SOURCE: Fujian Shifan Daxue Xuebao, Ziran Kexueban (**2001**), 17(1), 45-49
CODEN: FSDKES; ISSN: 1000-5277
PUBLISHER: Fujian Shifan Daxue Xuebao Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB An electrodeposition technique was adopted to fabricate calcium **phosphate coatings** on **titanium** substrate, which converted to hydroxyapatite **coatings** in alkaline solution The effects of exptl. conditions such as the c.d., concentration of salts, the temperature of electrolyte, quantity of elec. charge, alkaline solution on the morphol. of **coatings** were studied. SEM, XRD, IR were used to characterize the composition and the crystal structural of the **coatings.** The results show that the electrodeposited calcium phosphate **coating** was converted to pure needle-like hydroxyapatite crystals in alkaline solution
CC 42-2 (Coatings, Inks, and Related Products)
Section cross-reference(s): 72
ST electrodeposition structural characteristic hydroxyapatite **coating**
IT **Coating process**
Crystal structure
Electrodeposition
Surface structure
(electrodeposition **process** and structural characteristics of hydroxyapatite **coatings**)
IT 1306-06-5, Hydroxyapatite 7440-32-6, Titanium, uses 7757-93-9
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(electrodeposition **process** and structural characteristics of hydroxyapatite **coatings**)

L48 ANSWER 10 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:326146 HCAPLUS
DOCUMENT NUMBER: 134:330102
TITLE: **Coated** aluminum alloys for preparation of cans, two-piece seamless cans, and lids for easy-open cans

INVENTOR(S): Kurokawa, Hiroshi; Takasaki, Yasuhiro
PATENT ASSIGNEE(S): Tsutsumi, Yotaro, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

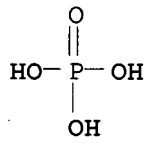
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001121648	A	20010508	JP 1999-303909	19991026

PRIORITY APPLN. INFO.: JP 1999-303909 19991026

AB The alloys have successive multilayers of an inorg. **surface treatment layer**, an aqueous phenolic resin-based organic **surface treatment layer**, and a polyester polymer **coating**, at least on the **surface** forming the container inner **surface.** The Al alloy may comprise Mg 0.2-5.5, Si 0.05-1, Fe 0.05-1, Cu 0-0.35, Mn 0-2, and Cr 0-0.4 weight%. A preferable structural repeating unit for the phenolic resin is also given in a Markush structure. Also claimed are two-piece seamless cans and lids for easy-open cans comprising of the **coated** alloys. The **coated** alloys have excellent formability and corrosion resistance.

IT **13765-94-1**, CT-K 3795
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(CT-K 3795, inorg. **layer** from; formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)

RN 13765-94-1 HCAPLUS
CN Phosphoric acid, titanium salt (8CI, 9CI) (CA INDEX NAME)



●x Ti(x)

IC ICM B32B015-08
ICS B21D051-26; B65D001-12; C22C021-02; C22C021-06; C23C022-24
CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 42
ST two piece can aluminum alloy **coated**; lid easy open can aluminum alloy; polyester **coated** aluminum alloy can; phenolic resin **coated** aluminum alloy can; phosphated

aluminum alloy corrosion resistant can
IT Phenolic resins, uses
RL: DEV (Device component use); USES (Uses)
(aqueous; formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)
IT Cans
(easy-open; formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)
IT Lids
(for easy-open cans; formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)
IT Chromating
(formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)
IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)
IT **Coating process**
(phosphating; formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)
IT Cans
(two-piece; formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)
IT 13765-95-2, Zirconium phosphate
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(AL-N 405, inorg. **layer** from; formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)
IT **13765-94-1**, CT-K 3795
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(CT-K 3795, inorg. **layer** from; formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)
IT 9017-34-9 24938-04-3, Ethylene isophthalate-ethylene terephthalate copolymer 37202-63-4, JIS A5182P H19 37321-73-6, JIS A3004P H19 336611-82-6
RL: DEV (Device component use); USES (Uses)
(formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)
IT 336622-65-2, AM 702
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(phosphate-chromate treatment with; formable Al alloys having multilayered **coatings** of inorg., aqueous phenolic resins, and polyesters for corrosion-resistant cans and easy-open can lids)

L48 ANSWER 11 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:161746 HCAPLUS
DOCUMENT NUMBER: 134:196299
TITLE: **Surface** technology for spacecrafts
AUTHOR(S): Takada, Koji
CORPORATE SOURCE: Takada Lab., Inc., 26-1, Suemori-dori, Chikusa-ku, Nagoya-shi, Aichi, 464-0821, Japan
SOURCE: Hyomen Gijutsu (**2001**), 52(1), 7-10
CODEN: HYGIEX; ISSN: 0915-1869
PUBLISHER: Hyomen Gijutsu Kyokai
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review, with 5 refs., on chromating and phosphating of 2219 Al alloys, phosphate fluoride **coating** of Ti alloys for adhesion with carbon fiber composites, electroforming of Cu alloys and Ni alloys, and lubricating composite platings for spacecrafts and space station.
CC 56-0 (Nonferrous Metals and Alloys)
ST review spacecraft aluminum alloy chromating phosphating; **titanium** alloy **phosphate** fluoride **coating** spacecraft review
IT **Coating** materials
(lubricating composite platings; **surface treatment** of alloys for spacecrafts)
IT **Coating process**
(phosphating; **surface treatment** of alloys for spacecrafts)
IT Chromating
Electroforming
Space vehicles
(**surface treatment** of alloys for spacecrafts)
IT Titanium alloy, base
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**surface treatment** of alloys for spacecrafts)
IT 12672-17-2, AA2219
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**surface treatment** of alloys for spacecrafts)

L48 ANSWER 12 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:124463 HCAPLUS
DOCUMENT NUMBER: 134:196244
TITLE: Galvanized steel sheet subjected to conversion treatment for good corrosion resistance
INVENTOR(S): Ueda, Koichiro; Asabuki, Mitsuo; Ariyoshi, Yasumi; Saito, Minoru
PATENT ASSIGNEE(S): Nisshin Steel Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001049457	A	20010220	JP 1999-218579	19990802

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PRIORITY APPLN. INFO.: JP 1999-218579
199908
02
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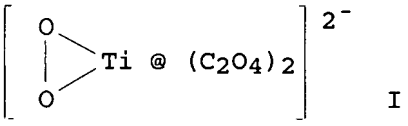

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AB A galvanized steel sheet is **coated** with a conversion film containing a 4-valence Ti compd, an oxalate, and a phosphate. The **coating** is obtained by using a **surface treatment** agent containing peroxidized Ti-containing anion I and a phosphate.

IC ICM C23C022-48
ICS C23C028-00

CC 55-6 (Ferrous Metals and Alloys)

ST **titanium** compd oxalate **phosphate** conversion **coating** galvanized steel

IT **Coating** materials
(anticorrosive; galvanized steel sheet subjected to conversion treatment for good corrosion resistance)

IT **Coating process**
(conversion; galvanized steel sheet subjected to conversion treatment for good corrosion resistance)

IT 144-62-7DP, Oxalic acid, salts
RL: PNU (Preparation, unclassified); PREP (Preparation)
(**coating** containing; galvanized steel sheet subjected to conversion treatment for good corrosion resistance)

IT 7664-38-2, Phosphoric acid, uses 7722-84-1, Hydrogen peroxide, uses 66060-51-3 155864-82-7
RL: NUU (Other use, unclassified); USES (Uses)
(**surface treatment** solution containing; galvanized steel sheet subjected to conversion treatment for good corrosion resistance)

L48 ANSWER 13 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:405676 HCAPLUS
DOCUMENT NUMBER: 133:60902
TITLE: Modified red phosphorus, its manufacture, and its compositions
INVENTOR(S): Kinose, Yutaka; Inoue, Akitoshi
PATENT ASSIGNEE(S): Nippon Chemical Industrial Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2000169119 A 20000620 JP 1998-337887 199811 27 <--

JP 3894257 B2 20070314

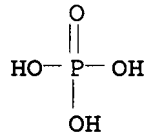
PRIORITY APPLN. INFO.: JP 1998-337887 199811 27 <--

AB Modified red P having inorg. pigment **coatings** formed by reaction or ion pairing of cationic water-soluble resin and anionic **surfactant** is claimed. A dispersion, obtained by addition of a pigment in an aqueous solution of an anionic **surfactant** or a cationic water-soluble resin optionally containing a nonionic **surfactant**, is mixed with an aqueous red P particle dispersion and then mixed with an aqueous solution of anionic **surfactant**, cationic water-soluble resin, optionally containing a nonionic **surfactant**, to give the modified red P. Colorless compns. containing the modified red P and inorg. pigment powder are also claimed. The compns. are used as flame retardants for polymer compns., showing minimized phosphine generation.

IT **13765-94-1**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(inorg. pigment; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

RN 13765-94-1 HCAPLUS

CN Phosphoric acid, titanium salt (8CI, 9CI) (CA INDEX NAME)



●x Ti(x)

IC ICM C01B025-00
ICS C08K003-32; C08K009-08; C09C001-00; C09C003-06; C09K021-04

CC 49-1 (Industrial Inorganic Chemicals)
Section cross-reference(s): 37

ST red phosphorus **surface modification** colorless compn; flame retardant red phosphorus **surface modification**; pigment **surfactant** polymer **coating** red phosphorus

IT **Surfactants**
(anionic; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT Polyelectrolytes
(cationic, water-soluble; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT **Coating process**

Fireproofing agents
(**coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT Polyamides, **processes**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(epoxy, cationic water-soluble polymer; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT Pigments, nonbiological
(inorg.; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT **Surfactants**
(nonionic; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT Epoxy resins, **processes**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyamide-, cationic water-soluble polymer; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT Plastics, **processes**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(thermosetting, red phosphorus precoated with; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT 36290-04-7
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(Demol N; nonionic **surfactant**; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT 55199-99-0, Sumirez 650
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(cationic water-soluble polymer; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT 150385-62-9, Hishigado TP-10 170346-46-0, Hishigado CP-A 15
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(**coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT 11118-57-3, Chromium oxide 276881-87-9, Kromex X 10
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(complementary color for colorless flame retardant preparation; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT 1309-42-8, Magnesium hydroxide 1309-48-4, Magnesium oxide, **processes** 1314-13-2, Zinc oxide, **processes** 1344-28-1, Aluminum oxide, **processes** 7779-90-0, Zinc phosphate 7784-30-7, Aluminum phosphate 10043-83-1, Magnesium phosphate 12651-23-9, Titanium hydroxide **13765-94-1** 20427-58-1, Zinc hydroxide 21645-51-2, Aluminum hydroxide, **processes**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(inorg. pigment; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT 13463-67-7, Tipaque CR-50, **processes**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(pigment; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

IT 1305-62-0, Calcium hydroxide, **processes** 1305-78-8, Calcium oxide, **processes** 1314-23-4, Zirconium oxide, **processes** 11104-61-3, Cobalt oxide 12672-51-4, Cobalt hydroxide 14475-63-9, Zirconium hydroxide
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(red phosphorus precoated with; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

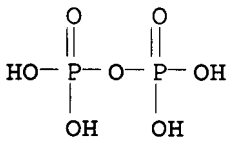
IT 7723-14-0, Red phosphorus, **processes**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(red; **coating** of inorg. pigments on red phosphorus by addition of cationic water-soluble polymers and anionic **surfactants** for preparation of colorless flame retardants)

L48 ANSWER 14 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:437763 HCAPLUS
DOCUMENT NUMBER: 131:208095
TITLE: Textural properties of α-titanium(IV) phenylphosphonate: influence of preparation conditions
AUTHOR(S): Anillo, Adela A.; Villa-Garcia, Maria A.; Llavona, Ricardo; Suarez, Marta; Rodriguez, Julio
CORPORATE SOURCE: Departamento de Quimica Organica e Inorganica, Universidad de Oviedo, Oviedo, 33071, Spain
SOURCE: Materials Research Bulletin (**1999**), 34(4), 627-640
CODEN: MRBUAC; ISSN: 0025-5408
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB **Layered** α-Ti(IV) phenylphosphonate can be prepared with a broad variation in **surface** area and porosity. Several sources for tetravalent Ti ion and different synthetic **procedures** were studied. The solids were characterized by powder XRD, thermogravimetric (TG) anal., IR and 31P magic angle spinning (MAS) NMR spectroscopies, N2 adsorption-desorption isotherms, and SEM. The materials obtained have a high thermal stability as shown by TGA. N2 adsorption-desorption isotherms of

the solids correspond to type IV of the BDDT classification and show hysteresis loops H-3, characteristic of solids with slit-shaped pores. The materials are essentially mesoporous, and any mensurable microporosity was not detected. BET **surface** areas, porosity, and crystallinity are markedly dependent on the preparation **procedure.**

IT **13470-09-2**
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(formation from thermal decomposition of **layered** α-titanium(IV) phenylphosphonate)
RN 13470-09-2 HCAPLUS
CN Diphosphoric acid, titanium(4+) salt (1:1) (CA INDEX NAME)



● Ti(IV)

CC 78-5 (Inorganic Chemicals and Reactions)
ST titanium phenylphosphonate prepn IR NMR thermal decompn; **surface** area **layered** titanium phenylphosphonate; porosity **layered** titanium phenylphosphonate; crystallinity **layered** titanium phenylphosphonate
IT IR spectra
NMR (nuclear magnetic resonance)
Thermal decomposition
(of **layered** α-titanium(IV) phenylphosphonate)
IT Crystallinity
Porosity
Surface area
(of **layered** α-titanium(IV) phenylphosphonate influenced by preparation conditions)
IT 7664-39-3, Hydrofluoric acid, uses 7722-84-1, Hydrogen peroxide, uses
RL: NUU (Other use, unclassified); USES (Uses)
(for preparation of **layered** α-titanium(IV) phenylphosphonate)
IT **13470-09-2**
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(formation from thermal decomposition of **layered** α-titanium(IV) phenylphosphonate)
IT 75406-75-6P, Titanium(IV) phenylphosphonate
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation, thermal decomposition, IR and 31P MAS NMR spectra and influence of preparation **conditions** on **surface** area, porosity and crystallinity)
IT 1571-33-1, Phenylphosphonic acid 7550-45-0, Titanium chloride (TiCl4), reactions 7705-07-9, Titanium chloride (TiCl3), reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for preparation of **layered** α-titanium(IV) phenylphosphonate)
REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 15 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:157010 HCAPLUS
DOCUMENT NUMBER: 130:240413
TITLE: **Surface-treated** metal material having corrosion-resistant **coating**
INVENTOR(S): Shoji, Hiromasa; Tadokoro, Kenichiro; Sakashita, Masao
PATENT ASSIGNEE(S): Nippon Steel Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 6
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11061429	A	19990305	JP 1997-232547 <--	19970828
US 6190780	B1	20010220	US 1998-93109 <--	19980608
PRIORITY APPLN. INFO.:			JP 1996-18519 A <--	19960205
			JP 1996-18520 A <--	19960205
			JP 1996-63427 A <--	19960319
			JP 1996-63428 A <--	19960319
			JP 1996-271238 A <--	19961015
			JP 1996-284237 A <--	19961025
			WO 1997-JP272 A2 <--	19970204
			JP 1997-149793 A	19970606

09
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JP 1997-221531 A
199708
18
<--
JP 1997-232547 A
199708
28
<--
JP 1997-232548 A
199708
28
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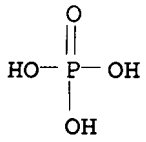
AB The metal material has the **coating** mainly composed of a polymer and a rare earth salt and/or Group IVB element salt with an oxo acid and/or a hydroxo acid. Preferably, the rare earth metal and/or Group IVB element is Y, La, Ce, and/or Zr. The **coating** has high adhesion to the metal material even under **processing.** Since the **coating** contains no 6-valent Cr, the metal material is friendly to the environment.

IT **13765-94-1P**
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(metal material having corrosion-resistant **coating** composed of polymer and (hydro)oxo acid salt with rare earth metal and/or Group IVB element)

RN 13765-94-1 HCAPLUS

CN Phosphoric acid, titanium salt (8CI, 9CI) (CA INDEX NAME)



●x Ti(x)

IC ICM C23C022-08
ICS B05D007-14; C23C022-42; C23C022-74; C23C028-00; C23C030-00

CC 55-6 (Ferrous Metals and Alloys)
Section cross-reference(s): 56

ST **surface treated** metal corrosion resistant **coating**; oxo acid rare earth salt anticorrosion; Group IVB salt oxo acid anticorrosion

IT **Coating** materials
(anticorrosive; metal material having corrosion-resistant **coating** composed of polymer and (hydro)oxo acid salt with rare earth metal and/or Group IVB element)

IT Acrylic polymers, **processes**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(carboxy-containing; metal material having corrosion-resistant **coating** composed of polymer and (hydro)oxo acid salt with rare earth metal and/or Group IVB element)

IT Galvanized steel
Styrene-butadiene rubber, **processes**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(metal material having corrosion-resistant **coating** composed of polymer and (hydro)oxo acid salt with rare earth metal and/or Group IVB element)

IT Group IVB elements
Rare earth metals, preparation
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(metaphosphates; metal material having corrosion-resistant **coating** composed of polymer and (hydro)oxo acid salt with rare earth metal and/or Group IVB element)

IT 12597-69-2, Steel, **processes**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(Al-Si alloy-plated; metal material having corrosion-resistant **coating** composed of polymer and (hydro)oxo acid salt with rare earth metal and/or Group IVB element)

IT 10343-62-1DP, Metaphosphoric acid, salts with rare earth metal and/or Group IVB element **13765-94-1P** 13765-95-2P, Zirconium phosphate 13765-96-3P 13778-59-1P, Lanthanum phosphate 13859-99-9P, Lanthanum molybdate 13990-54-0P, Yttrium phosphate 14298-32-9P, Neodymium phosphate 37382-36-8P, Lanthanum tungstate 52489-20-0P, Lanthanum vanadate
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(metal material having corrosion-resistant **coating** composed of polymer and (hydro)oxo acid salt with rare earth metal and/or Group IVB element)

IT 9003-55-8
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(styrene-butadiene rubber, metal material having corrosion-resistant **coating** composed of polymer and (hydro)oxo acid salt with rare earth metal and/or Group IVB element)

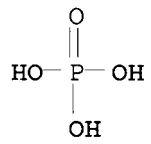
IT 219523-37-2 837416-30-5
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(triblock; metal material having corrosion-resistant **coating** composed of polymer and (hydro)oxo acid salt with rare earth metal and/or Group IVB element)

L48 ANSWER 16 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:719152 HCAPLUS
DOCUMENT NUMBER: 127:349262
TITLE: Effect of **surface treatment** of steel on zinc phosphate **coatings**
AUTHOR(S): Hanna, Faird; Shoeib, Madiha; Farouk, Magdi
CORPORATE SOURCE: Central Metallurgical Res. and Development Inst., Cairo, Egypt
SOURCE: Surface Modification Technologies X, Proceedings of the International Conference on Surface Modification Technologies, 10th, Singapore, Sept. 2-4, 1996 (**1997**), Meeting Date 1996, 773-786. Editor(s): Sudarshan, T. S.;

Khor, K. A.; . Jeandin, Michel. Institute of Materials: London, USA.
CODEN: 65FZA7
DOCUMENT TYPE: Conference
LANGUAGE: English
AB The effect of **surface treatment** stages such as mech. cleaning, degreasing, pickling and activation on the phosphatability of steel at the early period of reaction were thoroughly investigated. Different zinc phosphate baths contain Ni, Ca, Mn, polyphosphate, organic acids and **surface** active agents were also used. It was shown that the **surface conditioning** step either with colloidal **titanium phosphate** solution or dilute organic acids prior to phosphating has a great effect on the **coating** characteristics over the other **surface treatment** stages including the chemical composition of the zinc phosphate baths. The incorporation of -ionic species in the phosphate solution has a little effect on the phosphatability of steel and can be arranged in the following decreasing order Mn-Ca-Ni according to the grain size. Mild alkaline degreasers having pH value ≤ 10.5 without acid pickling are the most favorable pretreatment stages prior to activation. Mech. treatment is the best **method** for cleaning rusted parts. An improvement in the aging stability of the activation a nd consequently in the performance of the **coating** were found by addition of anionic **surfactant** of the type tall oil fatty acid ethoxylates. Make up water must contain ≤ 60 ppm Ca + Mg with elec. conductivity not higher than 200 μS cm-1 at a pH range from 8-9.5.

IT **13765-94-1**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of **surface treatment** of steel on zinc phosphate **coatings**)

RN 13765-94-1 HCAPLUS
CN Phosphoric acid, titanium salt (8CI, 9CI) (CA INDEX NAME)



●x Ti(x)

CC 55-6 (Ferrous Metals and Alloys)
ST **surface** steel zinc phosphate **coating** **surfactant**
IT **Surfactants**
(anionic; effect of **surface treatment** of steel on zinc phosphate **coatings**)
IT **Coating** materials
(anticorrosive; effect of **surface treatment** of steel on zinc phosphate **coatings**)
IT Aging, materials
Degreasing
Electric conductivity

Grain size
Pickling
Surfactants
(effect of **surface treatment** of steel on zinc phosphate **coatings**)
IT Polyphosphates
Tall oil
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of **surface treatment** of steel on zinc phosphate **coatings**)
IT **Coating process**
(phosphating; effect of **surface treatment** of steel on zinc phosphate **coatings**)
IT 7779-90-0, Zinc phosphate 12724-44-6, properties **13765-94-1** 51653-94-2, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of **surface treatment** of steel on zinc phosphate **coatings**)

L48 ANSWER 17 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1994:276993 HCAPLUS
DOCUMENT NUMBER: 120:276993
TITLE: Microhardness and spectroscopy studies of **surface modification** of titanium alloys by melted metaphosphates
AUTHOR(S): Deffontaines-Fourez, M.; Deffontaines, B.; Chicot, D.; Iost, A.
CORPORATE SOURCE: Universite du Littoral, Dunkerque, 59379, Fr.
SOURCE: Thin Solid Films (**1994**), 241(1-2), 230-3
CODEN: THSFAP; ISSN: 0040-6090
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new **method** is proposed in order to **improve** the **surface** properties of titanium alloys used in biomedical applications. This paper considers the **surface modification** by the reaction between metaphosphate glasses and titanium alloys (TA6V). The structural characterization of this material has been realized by several spectroscopic **methods** such as SEM, energy-dispersive x-ray anal. and wavelength-dispersive spectroscopy. Measurements of Vickers microhardness exhibit a correlation between the phosphorus profile and the evolution of hardness of the modified titanium alloy **surface.** The relative increase in the Vickers microhardness is about 65%. By application of the composite model, the absolute hardness of the **coating** was found HV0 = 550.
CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 57, 63
ST **titanium** alloy **coating phosphate** glass
IT **Coating** materials
(**phosphate**, on **titanium** alloy from glass melt, hardness and composition of)
IT **Coating process**
(phosphating, of titanium alloy, in metaphosphate glass melt)

L48 ANSWER 18 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1984:442304 HCAPLUS
DOCUMENT NUMBER: 101:42304

TITLE: **Surface treatment** of aluminum
INVENTOR(S): Wittel, Klaus; Schiefer, Peter
PATENT ASSIGNEE(S): Metallgesellschaft A.-G. , Fed. Rep. Ger.
SOURCE: Ger. Offen., 10 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3236247	A1	19840412	DE 1982-3236247 <--	19820930
EP 106389	A1	19840425	EP 1983-201327 <--	19830916
R: BE, CH, DE, FR, IT, LI, NL, SE				
ZA 8307238	A	19840627	ZA 1983-7238 <--	19830928
CA 1199559	A1	19860121	CA 1983-437827 <--	19830928
AU 8319720	A	19840405	AU 1983-19720 <--	19830929
BR 8305371	A	19840508	BR 1983-5371 <--	19830929
JP 59083776	A	19840515	JP 1983-181798 <--	19830929
GB 2131052	A	19840613	GB 1983-26185 <--	19830930
ES 526551	A1	19840616	ES 1983-526551 <--	19830930
PRIORITY APPLN. INFO.:			DE 1982-3236247 A <--	19820930

AB Conversion **coatings** of **surface** d. 20-200 mg/m2 on Al are obtained by holding in Ti- and/or Zr-, F--, and PO43--containing solns., for subsequent application of lacquers, adhesives, or plastics. The pH of the solution is ≥3.5 and it contains Zr ≥1, Ti ≥0.5, and PO43- ≥1.5 g/L at

mol ratios PO43-/Zr or PO43-/Ti ≥0.5 and F-/Zr or F-/Ti ≥5. Thus, an Al sheet was degreased in a NaOH-based solution, H2O-rinsed, and dipped (1 s) in a solution containing H2TiF6 10.2, PO43- 4.14, and NH4F 2.3 g/L followed by rolling to retain 6 mL solution/m2 Al and drying at 80°. The sp. **surface** weight of the **coating** was 100 mg/m2.

IC C23F007-14
CC 56-6 (Nonferrous Metals and Alloys)
ST aluminum conversion **coating**
IT **Coating process**
(of aluminum, in **titanium** or zirconium **phosphate**-fluoride solns., for lacquering)
IT 7429-90-5, uses and miscellaneous
RL: USES (Uses)
(**coating** of, in **titanium** or zirconium **phosphate**-fluoride solns., for lacquering)
IT 12021-95-3 14265-44-2, uses and miscellaneous 17439-11-1
RL: USES (Uses)
(**coating** solns. containing, for conversion **coatings** on aluminum)

L48 ANSWER 19 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1982:218909 HCAPLUS
DOCUMENT NUMBER: 96:218909
TITLE: Mechanisms of adhesion failure between polymers and metallic substrates: titanium aluminum-vanadium (6Al-4V) with HT 424 adhesive
AUTHOR(S): Smith, Tennyson; Kaelble, David H.
CORPORATE SOURCE: Rockwell Int., Thousand Oaks, CA, USA
SOURCE: Treatise Adhes. Adhes. (**1981**), Volume 5, 235-92. Editor(s): Patrick, Robert L. Dekker: New York, N. Y.
CODEN: 20VFAI
DOCUMENT TYPE: Conference
LANGUAGE: English
AB The effect of **surface treatment** of Ti 6Al-4V alloy on the failure mechanism of its adhesive bond with HT 424 [37307-63-4] epoxy resin was determined by different **methods.** Auger electron spectroscopy confirmed a lower concentration of Ti, Al and V in the oxide **layer** of **phosphate**-fluoride-treated **Ti** 6Al-4V than in the untreated sample. The adhesion failure mode confirmed a nonuniform bond strength of the alloy-HT 424 lap shear joint. An amorphous TiO2 film, .apprx.540 Å thick, was formed on **surface treatment** of the alloy. Contact angle measurements confirmed the wettability of the **surface-treated** alloy by HT 424 adhesive and primer. **Surface** mapping of Ti 6Al-4V could be used as a nondestructive testing **method** to predict weak bonding sites prior to bonding. **Surface** aging of Ti 6Al-4V had no effect on oxide thickness, and exposing the joint to a humidity chamber degraded the joint due to the degradation of HT 424.
CC 38-3 (Plastics Fabrication and Uses)
ST adhesion titanium alloy epoxy; **surface treatment** titanium alloy adhesion
IT Epoxy resins, properties
RL: PRP (Properties)
(adhesion of, to titanium alloy, **surface treatment** effect on)
IT Adhesion
(of titanium alloy, to epoxy resins, **surface**

treatment effect on)
IT **Surface**
(**treatment** of, of titanium alloy, adhesion to epoxy resins in relation to)
IT 12743-70-3
RL: PRP (Properties)
(adhesion of, to epoxy resin, **surface treatment** effect on)
IT 37307-63-4
RL: PRP (Properties)
(adhesion of, to titanium alloy, **surface treatment** effect on)

L48 ANSWER 20 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1980:201985 HCAPLUS
DOCUMENT NUMBER: 92:201985
TITLE: **Surface treatment** of iron, zinc, or their alloys
INVENTOR(S): Nagaei, Yoshio; Suzuki, Masakazu; Kawaguchi, Iwakichi
PATENT ASSIGNEE(S): Nippon Parkerizing Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 54142139	A	19791106	JP 1978-49750	197804 28
			<--	
JP 56025512	B	19810612		

PRIORITY APPLN. INFO.: JP 1978-49750 A 197804 28
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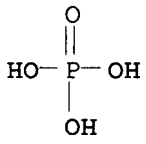
AB Fe, Zn, or their alloys are treated with acidic phosphate solns. containing myo-inositol H3PO4 ester compd(s). Adhesion of subsequent paints, and the corrosion resistance, are improved. Thus, a galvanized steel plate was sprayed with an aqueous **Ti phosphate** solution at 50° for 5 s, sprayed with a solution containing Zn2+ 2.5, PO43- 10, NO3- 3, Ni2+ 2, F- 0.2, and phytic acid [83-86-3] 0.03 g/L at 65° for 5 s, and finally sprayed with an aqueous chromate solution at 60° for 5 s; after drying, the plate was **coated** with an alkyd-melamine paint, and heated at 140° for 25 min. The paint **layer** adhered strongly to the substrate, and the steel plate had high corrosion resistance.
IT **13765-94-1**
RL: USES (Uses)
(steel **coating** with solution containing, of galvanized sheet for painting)
RN 13765-94-1 HCAPLUS
CN Phosphoric acid, titanium salt (8CI, 9CI) (CA INDEX NAME)



●x Ti(x)

IC C23F007-08; B05D003-10
CC 55-6 (Ferrous Metals and Alloys)
Section cross-reference(s): 42
ST galvanization steel **surface treatment**; phosphating galvanization steel **coating**; chromating galvanization steel **coating**
IT Galvanized iron and steel
RL: USES (Uses)
(**coating** of, for painting)
IT **Coating process**
(chromating, of galvanized steel, for painting)
IT **Coating process**
(phosphating, of galvanized steel, for painting)
IT 108-78-1D, polymers, alkyd
RL: USES (Uses)
(painting with, of galvanized steel, **surface treatment** for)
IT 83-86-3 **13765-94-1**
RL: USES (Uses)
(steel **coating** with solution containing, of galvanized sheet for painting)

L48 ANSWER 21 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1980:167496 HCAPLUS
DOCUMENT NUMBER: 92:167496
TITLE: **Surface treatment** of iron, zinc, or their alloys
INVENTOR(S): Yashiro, Kuniharu; Miyata, Masanori; Miyazaki, Yasushi
PATENT ASSIGNEE(S): Nihon Parkerizing Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 54148140	A	19791120	JP 1978-55633	197805 12
JP 56028994	B	19810706	<--	

PRIORITY APPLN. INFO.: JP 1978-55633 A 197805 12

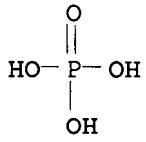
<--

AB Fe, Zn, or their alloys are treated with aqueous acidic phosphate solns. containing R1R2R3CPO3X (R1, R2, R3 = C1-6 alkyl, H, phosphonic acid group, or OH; X = H or a base). Adhesion of subsequent paints, and corrosion resistance, are improved. Thus, a galvanized steel sheet was sprayed with an aqueous **Ti phosphate** solution at 50° for 5 s, sprayed with a phosphate solution containing Zn2+ 2.5, PO43- 10, NO3- 3, Ni2+ 2, F- 0.2, and 1-hydroxyethane-1,1-diphosphonic acid [2809-21-4] 0.08 g/L at 65° for 5 s, and finally sprayed with an aqueous chromate solution at 60° for 5 s; after drying, the sheet was **coated** with an alkyd-melamine paint, and heated at 140° for 25 min. The paint adhered strongly to the substrate, and the steel sheet had high corrosion resistance.

IT **13765-94-1**
RL: USES (Uses)
(spray **coating** with solution containing, of galvanized steel for painting)

RN 13765-94-1 HCAPLUS

CN Phosphoric acid, titanium salt (8CI, 9CI) (CA INDEX NAME)



●x Ti(x)

IC C23F007-08

CC 55-6 (Ferrous Metals and Alloys)
Section cross-reference(s): 42

ST galvanization steel **surface treatment**; **coating** galvanization steel paint; chromating galvanization steel paint

IT Galvanized iron and steel
RL: PROC (Process)
(spray **coating** of, for painting)

IT **Coating process**
(chromating, of steel sheet, for painting)

IT **Coating process**
(phosphating, of steel sheet, for painting)

IT 108-78-1D, polymers, alkyd
RL: USES (Uses)
(painting with, of galvanized steel, **surface treatment** for)

IT 2809-21-4 **13765-94-1**
RL: USES (Uses)
(spray **coating** with solution containing, of galvanized steel for painting)

L48 ANSWER 22 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1979:425777 HCAPLUS
DOCUMENT NUMBER: 91:25777
TITLE: **Titanium**-containing **phosphate** **conditioner** for metal **surfaces**

INVENTOR(S): Guhde, Donald J.
PATENT ASSIGNEE(S): Hull, R. O., and Co., Inc., USA
SOURCE: U.S., 4 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

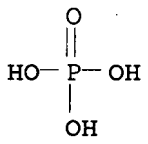
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4152176	A	19790501	US 1978-931373	19780807
DE 2902916	A1	19800221	DE 1979-2902916	19790126
GB 2027748	A	19800227	GB 1979-7628	19790305
GB 2027748	B	19820915		
FR 2433057	A1	19800307	FR 1979-12291	19790515
JP 55024998	A	19800222	JP 1979-99960	19790807

PRIORITY APPLN. INFO.: US 1978-931373 A 19780807

AB The phosphate conditioner is useful in cleaning and activating metal **surfaces** for subsequent reaction with phosphate **coating** solns. The conditioner is prepared by adding a mixture consisting of H2O 25-35, Na5P3O10 12-25, Na2HPO4 25-50, and Ti halide 0.02-10 parts at 65-95° to solid Na2HPO4 to form **Ti phosphate.** Ti in the latter is 0.005-2% of the combined mixture weight The mixture forms a dry **coating** with no heat being required.

IT **13765-94-1**
RL: USES (Uses)
(**coating** with, on metals, for **surface conditioning** prior to phosphating)

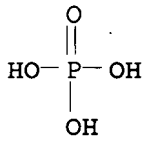
RN 13765-94-1 HCAPLUS
CN Phosphoric acid, titanium salt (8CI, 9CI) (CA INDEX NAME)



●x Ti(x)

IC C23F007-08
INCL 148006150R
CC 56-5 (Nonferrous Metals and Alloys)
ST **titanium phosphate coating** metal
IT **Coating process**
(of metals with **titanium phosphate**, for **surface conditioning** prior to phosphating)
IT **13765-94-1**
RL: USES (Uses)
(**coating** with, on metals, for **surface conditioning** prior to phosphating)

L48 ANSWER 23 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1976:167893 HCAPLUS
DOCUMENT NUMBER: 84:167893
TITLE: Activation of steel **surfaces** during phosphating
AUTHOR(S): Bialostocka, Helena
CORPORATE SOURCE: Pol.
SOURCE: Powloki Ochronne (**1975**), 3(4), 25-8
CODEN: PLOCAE; ISSN: 0137-3846
DOCUMENT TYPE: Journal
LANGUAGE: Polish
AB To permit **surface treatment** by alkaline degreasing and etching in acids, steel **surfaces** are activated before phosphating. This eliminates the harmful action of acids and alkalies and makes it possible to obtain **coatings** with better properties than after mech. **processing.** For phosphate [13847-22-8] **coatings**, the activation **process** should be conducted just before phosphating; it consists of immersing the steel in a bath containing 0.27% of PO43-, 0.12% Na+, and 0.001% Ti4+. The activator is **Ti phosphate** [**13765-94-1**] in the presence of a large excess of Na phosphate [7632-05-5]. For phosphating in Mn phosphate [10124-54-6], bath activation is achieved by using Fe Mn phosphate [22783-95-5], formed as sludge during phosphating. This sludge is insol. in H2O and its composition is approx. that of hurealite. The water suspension prepared from size-reduced and dried sludge mixed with Na4P2O7 [7722-88-5] leads to activation. The activation mechanism is unknown, however, it consists in formation of a large amount of crystallization nuclei.
IT **13765-94-1**
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for **coating** of steel with zinc phosphate)
RN 13765-94-1 HCAPLUS
CN Phosphoric acid, titanium salt (8CI, 9CI) (CA INDEX NAME)



●x Ti(x)

CC 55-6 (Ferrous Metals and Alloys)
IT **Coating process**
(with phosphates, steel activation for)
IT 7632-05-5
RL: CAT (Catalyst use); USES (Uses)
(catalysts, containing **titanium phosphate**, for **coating** of steel with zinc phosphate)
IT 22783-95-5
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for **coating** of steel with manganese phosphate)
IT **13765-94-1**
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for **coating** of steel with zinc phosphate)
IT 7779-90-0
RL: USES (Uses)
(**coating** with, of steel, activation with **titanium phosphate** in presence of sodium phosphate)
IT 10124-54-6
RL: USES (Uses)
(**coating** with, of steels, activation by iron manganese phosphate)

L48 ANSWER 24 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1975:414432 HCAPLUS
DOCUMENT NUMBER: 83:14432
TITLE: Evaluation of the adhesive bonding **processes** used in helicopter manufacture. 7. Preproduction evaluation of **improved** titanium **surfaces** preparation
AUTHOR(S): Rogers, Narvel L.
CORPORATE SOURCE: Bell Helicopter Co., Fort Worth, TX, USA
SOURCE: U. S. N. T. I. S., AD Rep. (**1974**), No. 785597/6GA, 69 pp. Avail.: NTIS From: Govt. Rep. Announce. (U. S.) 1974, 74(24), 144
CODEN: XADRCH
DOCUMENT TYPE: Report
LANGUAGE: English
AB The phosphate-fluoride treatment (stabilized) was compared to a standard phosphate **treatment** for the **surface** preparation of com. Ti sheet. The stabilizing treatment provided an improvement in the life of adhesive bonded joints exposed to moisture and stress. The treatment **processes** were compared. Laboratory evaluations included standard specification qualification testing durability tests.
CC 56-5 (Nonferrous Metals and Alloys)
ST phosphate fluoride **surface treatment** titanium

IT **Coating process**
(of **titanium** sheet, with **phosphates** and fluorides for adhesive bonding for helicopters)
IT 7440-32-6, uses and miscellaneous
RL: USES (Uses)
(adhesive bonding of sheets of, for helicopters, **surface** preparation for)

L48 ANSWER 25 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1972:144012 HCAPLUS
DOCUMENT NUMBER: 76:144012
ORIGINAL REFERENCE NO.: 76:23397a,23400a
TITLE: Stabilized aqueous pretreating liquids for grain-refining iron- and zinc-containing metallic **surfaces**
INVENTOR(S): Morrison, Alexander Robley; Herrmann, Heinz D.
PATENT ASSIGNEE(S): Balm Paints Ltd.
SOURCE: Ger. Offen., 29 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2125963		19711209	DE 1971-2125963 <--	19710525
AU 453193			AU	
FR 2093664			FR	
GB 1348539			GB	
US 3728163		19730417	US	19710510
ZA 7103093		19710000	ZA <--	
PRIORITY APPLN. INFO.:			AU	19700525
			AU <--	19700731

AB Ti-containing grain-refining compds. (Jernsted salts) for ferrous and Zn-**coated** metals are stabilized over a pH range of 4.5 to >12 for up to 72 hr by adding addition copolymers of ≥1 unsatd. hydrocarbon or ether and ≥1 unsatd. polycarboxylic acid or anhydride having a viscosity of ≥3.5 cP at 25° in a 4% aqueous NaOH solution at pH 9. The Ti compound and stabilizer are added to the cleaning solution, the **treated** metal **surface** is phosphated afterwards, and a fine-grained, uniform, continuous phosphate film is obtained. For example, to a mixture containing NaOH 25, Na2CO3 60, an octylphenol-ethylene oxide anionic **surface** -active condensate 8, and a com. Ti compound 7%, 0.5% by weight maleic anhydride-Me vinyl ether copolymer (mole ratio 1:1, viscosity 200 cP

at 25° in a 4% aqueous NaOH solution) is added. The mixture is ground to 60-mesh and added to H2O at 71° to give a cleaning solution of pH >12. This solution contains 0.00056 weight % Ti compound (expressed as Ti ions) and 0.012 weight % stabilizer. Milled sheet metal covered with an oily film is sprayed for 1 min with this solution at 1.4 atm, washed for 1 min with clean H2O, and phosphated in the usual manner. The cleaning solution was used immediately after preparation, after 4 and 8 hr, and after 8 hr plus overnight cooling and reheating to 71°. The phosphated **surfaces** had, in each case, fine-grained, even, continuous phosphate films.

IC C23G; C23F

CC 55 (Ferrous Metals and Alloys)
Section cross-reference(s): 37

ST maleic anhydride copolymer stabilizer; vinyl ether copolymer stabilizer; phosphating pretreatment metal; titanium grain refining compd; polymer stabilizer titanium compd; ferrous **surface** grain refining; galvanized iron grain refining; iron galvanized grain refining; hydrocarbon copolymer grain refining

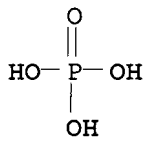
IT **Coating process**
(with **phosphates**, pretreatment with **titanium** compound-containing solns. for)

L48 ANSWER 26 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1972:128920 HCAPLUS
DOCUMENT NUMBER: 76:128920
ORIGINAL REFERENCE NO.: 76:20867a,20870a
TITLE: Metal pretreatment for powder **coating**
AUTHOR(S): Kuehner, Mark A.
CORPORATE SOURCE: Steel Amchem Prod. Inc., Ambler, PA, USA
SOURCE: Industrial Finishing (Wheaton, Illinois) (**1972**), 48(2), 18-22
CODEN: IFIIAJ; ISSN: 0019-8323
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Accelerated tests demonstrated the advisability of using conversion **coatings** to obtain optimum performance in powder **coating.** For cold-rolled steel, even though only a clean **surface** was needed to optimize initial phys. adhesion, iron phosphate [10402-24-1] or zinc phosphate [7779-90-0] **coatings** were necessary to obtain desirable long-range test performance. For aluminum [7429-90-5] and zinc [7440-66-6] it was also necessary to use a conversion **coating** to obtain good long-range test performance. Alkaline cleaning was the most commonly used precleaning **method**; sometimes a crystal modifier such as **titanium phosphate** [**13765-94-1**] was added to the alkaline cleaner to produce the desirable micro-crystalline **coating** structure.

IT **13765-94-1**
RL: TEM (Technical or engineered material use); USES (Uses)
(**coatings**, on metals, for **improved** **surface** for powder **coating**)

RN 13765-94-1 HCAPLUS
CN Phosphoric acid, titanium salt (8CI, 9CI) (CA INDEX NAME)



●x Ti(x)

CC 42 (Coatings, Inks, and Related Products)
ST powder **coating** metal substrate; cleaning metal **surface**
IT **Coating** materials
(metal phosphates, on metals, for **improved surface** for powder **coating**)
IT 7429-90-5, uses and miscellaneous 7440-66-6, uses and miscellaneous
RL: USES (Uses)
(**coatings** on, of metal phosphates, for **improved surface** for powder **coating**)
IT 7779-90-0 10402-24-1 **13765-94-1**
RL: TEM (Technical or engineered material use); USES (Uses)
(**coatings**, on metals, for **improved surface** for powder **coating**)

L48 ANSWER 27 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1972:89251 HCAPLUS
DOCUMENT NUMBER: 76:89251
ORIGINAL REFERENCE NO.: 76:14353a,14356a
TITLE: Application of the electron microprobe in the investigation of the influence of **surface** pretreatment on the progress of phosphatization and electrophoretic **coating**
AUTHOR(S): Lubkiewicz, J.; Kozlowski, A.
CORPORATE SOURCE: Inst. Mech. Precyz., Warsaw, Pol.
SOURCE: Werkstoffe und Korrosion (**1971**), 22(12), 998-1008
CODEN: WSKRAT; ISSN: 0043-2822
DOCUMENT TYPE: Journal
LANGUAGE: German
AB The distribution of Fe, P, Mn, Zn, Ni, and Ti in the **surface layers** was determined for phosphatized cast iron and cold-worked steel sheets electrophoretically **coated** with lacquer. On degreasing with emulsions or trichloroethylene prior to phosphatizing Fe was observed only in a thin **layer** adjacent to the metal **surface.** After alkaline degreasing, HCl pickling, or pickling combined with activation by **Ti phosphate** the **coatings** contained more Fe. On degreasing with organic solvents Ni2+ from the phosphatizing solution increased the number of crystallization nuclei and the rate of deposition. In the other cases the number and distribution of active sites (i.e. microelements) formed during pretreatment accounted for the deposition rate and the composition of the **coating.** In electrophoretic **coatings** formed on phosphatized **surfaces** Fe was distributed homogeneously. Without phosphatizing the **layers** near the metal **surface**

contained more Fe.
CC 56 (Nonferrous Metals and Alloys)
Section cross-reference(s): 42
ST phosphatizng iron pretreatment; electrophoretic **coating** steel pretreatment; pickling phosphatizing electrophoretic **coating**; degreasing phosphatizing electrophoretic **coating**; pretreatment phosphatizing electrophoretic **coating**; electron microprobe pretreatment **coating**
IT **Coating process**
(electrophoretic and with phosphates, on iron and steel, electron microprobe anal. of **surface treatment** effect on)
IT Pickling
(of iron and steel, electrophoretic and phosphate **coating** in relation to)
IT Grease
(removal of electrophoretic and phosphate **coating** in relation to)
IT 7439-89-6, properties 7439-96-5, properties 7440-02-0, properties 7440-32-6, properties 7440-66-6, properties 7723-14-0, properties
RL: PRP (Properties)
(distribution of, in electrophoretic and phosphate **coating**)

L48 ANSWER 28 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1972:89247 HCAPLUS
DOCUMENT NUMBER: 76:89247
ORIGINAL REFERENCE NO.: 76:14349a,14352a
TITLE: Evaluation of the adhesive bonding **processes** used in helicopter manufacture. I. Durability of adhesive bonds obtained as a result of **processes** used in the UH-1 helicopter
AUTHOR(S): Wegman, Raymond F.; Ross, Marie C.; Slota, Stanley A.; Duda, Edward S.
CORPORATE SOURCE: Picatinny Arsenal, Dover, NJ, USA
SOURCE: U. S. Nat. Tech. Inform. Serv., AD Rep. (**1971**), No. 732353, 110 pp. Avail.: NTIS From: Govt. Rep. Announce. (U.S.) 1971, 71(24), 125
CODEN: XADRCH
DOCUMENT TYPE: Report
LANGUAGE: English
AB The **methods** used to prepare adherends for components of UH-1 helicopters (prior to bonding) were evaluated for their effect on the durability of the bonded joint. The phosphate-fluoride **method** for Ti **treatment** produces a **surface** that, when bonded, is 7.5-10 times as durable as joints prepared from Ti **surfaces** cleaned with alkali. On aging, the **surface** structure of the phosphate-fluoride treated specimens showed signs of conversion to the less-durable structure found on the alkali-cleaned Ti. The **method** used to anodize Al produced a **surface** that, when bonded, had essentially the same durability as the bonds obtained by using **phosphate**-fluoride-etched **Ti.** Bonds to glass-resin-composite adherends are as durable as the composite itself and failures are interlaminar.
CC 56 (Nonferrous Metals and Alloys)
Section cross-reference(s): 37

ST adhesive bonding titanium pretreatment; helicopter adhesive bonding; **phosphate** fluoride **titanium** treatment

IT **Coating process**
(of **titanium** with **phosphate**-fluoride, for adhesive bonding in helicopters)

L48 ANSWER 29 OF 29 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1959:44651 HCAPLUS
DOCUMENT NUMBER: 53:44651
ORIGINAL REFERENCE NO.: 53:7961b-d
TITLE: Pretreatment solution for phosphate **coating** of metals
INVENTOR(S): Cavanagh, Walter R.; Maurer, James I.
PATENT ASSIGNEE(S): Parker Rust Proof Co.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2874081		19590217	US 1956-601660	19560802

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AB A dried formulation for preparing a pretreating solution for phosphate **coating** of metals is obtained by aging at a high temperature and drying a slurry prepared by mixing a cold, aqueous solution of a Na phosphate and a cold, aqueous dispersion of a Ti salt. In a typical example, 200 lb. of Na2HPO4 was dissolved in cold water at <70°F., and 97 lb. of com. Ti2(SO4)3 was dispersed in hot water at 160°F. and cooled to 65°F. before adding to the Na2HPO4 solution The resulting slurry was maintained at pH 7.3 while mixing. The temperature of the mixture was then raised to 140°F., and an addnl. 700 lb. of Na2HPO4 was added. After aging 1 hr. at 175°F., the slurry was run onto a rotary drum drier to produce the dried activating composition An aqueous solution of 0.63 g./l. of the above composition consistently achieved **conditioning** of metal **surfaces** for subsequent phosphate **coating**, as contrasted with less than 50% effectiveness in achieving conditioning at even higher salt concns. when the above preparative **procedure** was not followed. This treatment has served particularly for ferrous and Zn metal **surfaces** that were subsequently **treated** with a Zn, Mn phosphate **coating** solution

CC 9 (Metallurgy)

IT **Coating**(s)
(with **phosphates**, on metals, **Ti** salts in)

IT 7440-66-6, Zinc
(**coating** of, with **phosphates**, **Ti** salts in)

IT 10343-61-0, Titanium sulfate, Ti2(SO4)3
(metal **surface** activation with, for phosphating)

IT 7440-32-6, Titanium
(salts, metal **surface** activation with, for phosphating)

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